SOUTHERN PINE COUNCIL

2003 Edition

Old tables, Pre 2013
Do not use anymore.

Maximum Spans

Southern Pine Joists & Rafters

Visually Graded Lumber

Machine Stress Rated (MSR)

Machine Evaluated Lumber (MEL)

SOUTHERN PINE BY DESIGN™

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The Southern Pine Council is a joint promotional body coordinated and supported by producing members of the Southern Forest Products Association and Southeastern Lumber Manufacturers Association. For more information, contact either association.

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TECHNICAL ASSISTANCE

Need more help using these tables, or have other questions about using Southern Pine lumber? Contact the Wood Products Help Desk: 253/620-7400 (9am - 6pm Central Time)
e-mail: help@southernpine.com

Acknowledgement

The Southern Pine Council gratefully acknowledges members of the SPC Building Systems Committee for their assistance in reviewing this publication.

Table Number	Live Load (psf)	Dead Load (psf)	Deflection Limit	See Page
Floor Joists				
1	30	10	360	8
2	40	10	360	8
3	50	10	360	9
4	60	10	360	9
5	40	20	360	10
6	50	20	360	10
7	60	20	360	11
8	75	10	360	11
9	80	10	360	12
10	90	10	360	12
11	100	10	360	13
12	125	10	360	13
13	150	10	360	14
Wet-Service Floor Joists (MC >19%)				
14	40	10	360	14
15	60	10	360	15
16	100	10	360	15
Ceiling Joists				
17	10	5	240	16
18	20	10	240	16
Rafters (Snow Load, C_D = 1.15)				
19	20	10	240	17
20	30	10	240	17
21	40	10	240	18
22	50	10	240	18
23	20	15	240	19
24	30	15	240	19
25	40	15	240	20
26	50	15	240	20
27	20	20	240	21
28	30	20	240	21
29	40	20	240	22
30	50	20	240	22
31	20	10	180	23
32	30	10	180	23
33	40	10	180	24
34	50	10	180	24
35	20	15	180	25
36	30	15	180	25
37	40	15	180	26
38	50	15	180	26
39	20	20	180	27
40	30	20	180	27
41	40	20	180	28
42	50	20	180	28
Rafters (Construction Load, C_D = 1.25)				
43	20	10	240	29
44	20	15	240	29
45	20	20	240	30
46	20	10	180	30
47	20	15	180	31
48	20	20	180	31

MC = Moisture Content C_D = Load Duration Factor

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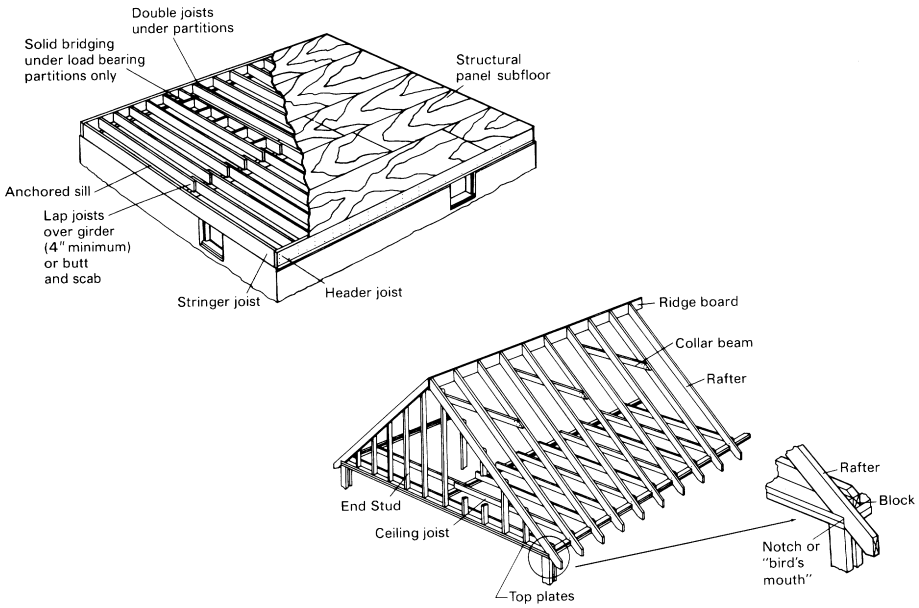
Southern Pine — An Abundant Resource

Southern Pine is a general group of four principal species — longleaf, shortleaf, slash, and loblolly — grown in a region that stretches from Virginia through eastern Texas. With over 200 million acres of timberland, the southern United States offers a potential for timber growth uncommon to other regions. And the continued practice of wise forest management, including prolific reforestation efforts, assures a bountiful supply of quality wood for generations to come.

Today's Versatile Building Material

Southern Pine has long been a preferred species for residential and nonresidential structures because of its high strength, durability, and fastener-holding power.

Kiln-dried Southern Pine lumber is ideal for joists and rafters. Empirical design values for Southern Pine dimension lumber, published in the *SPIB Standard Grading Rules for Southern Pine Lumber, 2002 Edition,* confirm Southern Pine's stature as the strongest structural lumber species for engineered and framing applications. This booklet presents a simplified system for determining allowable spans for joists and rafters, using Southern Pine lumber under a variety of loading conditions.



The Southern Pine Council does not grade or test lumber, and accordingly, does not assign design values to Southern Pine lumber. The design values contained herein are based on the *2002 SPIB Standard Grading Rules for Southern Pine Lumber*, published by the Southern Pine Inspection Bureau, and modified as required by the *2001 National Design Specification® (NDS®) for Wood Construction* published by the American Forest & Paper Association (AF&PA).

The primary purpose of this publication is to provide a convenient reference for joist and rafter spans for specific grades of Southern Pine lumber. The maximum spans provided herein were determined on the same basis as those in *Span Tables for Joists and Rafters,* published by AF&PA. Accordingly, the Southern Pine Council, its principals and/or members, do not warrant in any way that the design values on which the span tables for Southern Pine lumber contained herein are based are correct, and specifically disclaim any liability for injury or damage resulting from the use of such span tables.

The conditions under which lumber is used in construction may vary widely, as does the quality of the lumber and workmanship. Neither the Southern Pine Council, nor its principals and/or members, have any knowledge of the construction methods, quality of materials and workmanship used on any construction project; and accordingly, cannot and do not, warrant the performance of the lumber used in completed structures.

*Span Comparisons by Species** — *Maximum spans given in feet and inches*

Size	*Grade*	Southern Pine	Douglas Fir-Larch	Hem-Fir	Spruce-Pine-Fir
2 x 10s 16″ o.c.	**No. 1**	16 - 9	16 - 5	16 - 0	15 - 5
	No. 2	16 - 1	15 - 7	15 - 2	15 - 5
	No. 3	12 - 2	11 - 11	11 - 8	11 - 8
2 x 12s 16″ o.c.	**No. 1**	20 - 4	19 - 1	18 - 10	17 - 10
	No. 2	18 - 10	18 - 1	17 - 7	17 - 10
	No. 3	14 - 6	13 - 10	13 - 6	13 - 6

Source: *Wood Frame Construction Manual*, 2001 Edition, published by American Forest & Paper Association.

* Based on a 40 psf live load, 10 psf dead load and ℓ/360 deflection limitation.

Pressure-Treated Lumber

Southern Pine has long been a preferred species when pressure treatment with preservatives is required, because of its ease of treatability. The unique cellular structure of Southern Pine permits deep, uniform penetration of preservatives, rendering the wood useless as a food source for fungi, termites and micro-organisms.

Most wood species do not readily accept preservatives, and must first be "incised", or perforated with a series of small slits along the grain of the wood's surface. Southern Pine is one of the few wood species that does not require incising to meet American Wood-Preservers' Association (AWPA) standards.

Pressure-treated Southern Pine lumber products are available in a wide range of treatment options. Several waterborne preservatives are commonly used including Chromated Copper Arsenate (CCA), Alkaline Copper Quat (ACQ), and Copper Azole (CA). After December 31, 2003 CCA will be withdrawn for most residential consumer-use treated lumber applications. CCA will continue to be allowed for permanent wood foundations and industrial applications such as for treatment of poles, piles, highway use, some agricultural applications, saltwater marine exposures, and in specific engineered wood products such as plywood, glulam timber, and structural composite lumber. Refer to the SPC publications *Pressure-Treated Southern Pine* or *Southern Pine Use Guide* for more details.

Pressure-treated Southern Pine is recognized by all the major building codes and regulatory agencies for use in construction. Generally, building codes require pressure-treated or naturally durable wood for the following applications:

- Wood joists or the bottom of structural floors without joists that are within 18″ of exposed soil.
- Wood girders and beams closer than 12″ to exposed soil.
- Plates, sills and sleepers on concrete or masonry that is in direct contact with soil.
- Wood in permanent structures closer than 6″ to soil.
- Wood supporting moisture-permeable roofs and floors exposed to weather unless separated by an impervious moisture barrier.
- Wood framing members (including sheathing) which rest on foundation walls and are less than 8″ from soil.

Building codes further state that, when used in enclosed locations, the moisture content of the wood must be 19% or less at the time of permanent enclosure.

Observing the following points will aid in the successful use of pressure-treated Southern Pine.

Retentions (lbs./cu.ft.)	Uses/Exposure
0.10-0.25	Above Ground
0.21-0.41	Soil & Freshwater use
0.31-0.61	Permanent Wood Foundation
2.50	Saltwater use

- In addition to a certified grade mark, each piece of lumber should be treated in accordance with AWPA Standards and identified with a quality mark (either ink stamp or plastic end tag) by an ALSC-accredited inspection agency.
- Published design values apply to treated lumber, but must be multiplied by the appropriate wet service factor, C_M, when the moisture content will exceed 19% for an extended period of time.
- Hot-dipped galvanized or stainless steel 304 or 316 nails and fasteners should be used to resist corrosion.
- Treated lumber should be stacked and stored in the same manner as untreated wood. The pressure treatment of wood does not prevent normal shrinking and swelling of wood.
- Where possible, all cuts and holes should be completed before treatment.

Special Applications

PWF – The Permanent Wood Foundation, or PWF, is an innovative building system that saves builders time and creates warm, comfortable living areas. It is a load-bearing, lumber-framed foundation wall sheathed with plywood. All lumber and plywood used in the PWF are specially pressure treated with preservatives to withstand decay from moisture and termite attack. The PWF is accepted by the major building codes, federal agencies, and by lending, home warranty and fire insurance institutions. Refer to the SPC publication *PWF Design & Construction Guide* for details.

High-Moisture & Termite-Prone Areas – Treated Southern Pine offers added protection for residential and commercial building applications where conditions of high moisture exist. Areas susceptible to regular wetting include structural framing members adjacent to plumbing in kitchens and baths. Treated Southern Pine can also be utilized for total (entire structure) framing in residential and commercial buildings, where conditions exist for both high moisture and termites.

Bridges – Southern Pine lumber has been used for bridges, walkways, and boardwalks for hundreds of years. To meet stringent environmental requirements, designers today are following a trend to span wetland areas with timber bridges and elevated wood boardwalks. Stress-laminated timber bridges using pressure-treated Southern Pine lumber are gaining popularity among state, county, and municipal transportation officials. For sample design details, plans and specifications, contact SPC.

Marine Construction – For centuries, Southern Pine has been a marine construction material. Its performance in marine applications has been well documented and industry guidelines have been developed to ensure its long-term performance. New advances in preservative treatments, design and construction techniques have made lumber a cost-effective construction material. The use of Southern Pine lumber for marine construction includes a wide range of residential and commercial applications including docks, piers, boardwalks and bulkheads. Refer to the SPC publication *Marine Construction Manual* for specific construction details.

Using These Tables

The purpose of this publication is to provide easy-to-use joist and rafter span tables for specific grades of Southern Pine lumber. The maximum spans provided in these tables were determined on the same basis as those given in *Span Tables for Joists and Rafters* published by the American Forest & Paper Association (AF&PA).

There are three general categories of span tables.

Table Categories

	Tables	Page(s)
Floor Joists		
Conventional loads	1 - 7	8 - 11
Heavy live loads	8 - 13	11 - 14
Wet-service conditions	14 - 16	14 - 15
Ceiling Joists		
Conventional loads	17 - 18	16
Rafters		
Snow loads (C_D = 1.15)	19 - 42	17 - 28
Construction loads (C_D = 1.25)	43 - 48	29 - 31

General Requirements

The quality of wood products and fasteners and the design of load-supporting wood members and connections shall conform to the *National Design Specification® (NDS®) for Wood Construction* published by AF&PA. All members shall be so framed, anchored, tied, and braced to have the necessary strength and rigidity. Adequate bracing and bridging to resist wind and other lateral forces shall be provided.

Design Loads

Assumed loading conditions are stated in the heading for each table. Live and dead loads are shown in psf (pounds per square foot). The provided range of loads accommodates the most common design loads used. Structures in heavy snow load areas should be analyzed thoroughly using accepted engineering practice. For rafters with roof live loads less than 20 psf, see AF&PA's *Span Tables for Joists and Rafters* for adjustments.

Roof Coverings

Light Roofing *(10 psf dead load)*
Up to 2 courses of asphalt shingles, or wood shakes/shingles

Medium Roofing *(15 psf dead load)*
2″ clay book tile

Heavy Roofing *(20 psf dead load)*
3″ clay book tile

The estimated dead loads for rafters are based on the type or amount of roof covering material. Tables are included for three common coverings.

Listed dead loads include the weight of the framing members.

Lumber Grades

There are currently three different grading methods for sorting Southern Pine dimension lumber and assigning appropriate design values:

- Visually graded lumber
- Machine Stress Rated (MSR) lumber
- Machine Evaluated Lumber (MEL)

Visually graded lumber is the oldest and most common of the three methods. Visual grading is performed by qualified graders in the mill. These graders sort each piece of lumber into various grades based on visual characteristics known to affect lumber strength and stiffness, such as knot size and slope-of-grain. Consistent visual grading is achieved through proper training, education and supervision of the lumber graders. Visually graded lumber will adequately meet the structural requirements for most traditional applications.

Machine grading, which categorizes both MSR and MEL, reduces the variability associated with assigning stress grades to lumber. MSR and MEL can be advantageous, therefore, in more demanding engineered applications, such as trusses or long-span joists and rafters.

Machine Stress Rated (MSR) lumber is evaluated by mechanical stress rating equipment. MSR lumber is distinguished from visually graded lumber in that each piece is nondestructively tested and then sorted into bending strength and stiffness classes. In addition, each piece must also meet certain visual requirements before it can be assigned design values. MSR also requires daily quality control tests for bending strength and stiffness.

Machine Evaluated Lumber (MEL) is similar to MSR in that each piece is evaluated by nondestructive grading equipment and then sorted into various strength classifications, plus each piece must meet certain visual requirements. MEL requires daily quality control tests for tension strength in addition to the daily bending strength and stiffness tests required for MSR.

Visually Graded Lumber
Select Structural
No.1
No.2
No.3

Machine Stress Rated (MSR)
2400f-2.0E
2250f-1.9E
1950f-1.7E

Machine Evaluated Lumber (MEL)
M-23
M-14
M-29

Selected Grades

The most common lumber grades for the three different grading methods were selected for inclusion in these span tables. Contact the Southern Pine Council for span assistance on grades, on-center spacings or loading conditions not covered in these tables.

Most Commonly Produced Sizes, by Grade

Although the most common grades were selected for these tables, no single manufacturer produces all grades. In addition, not all sizes are produced for all grades. This chart indicates the most commonly produced sizes, by grade. Sizes that are blank are NOT currently produced by any manufacturer, but this is subject to change at any time based on market conditions. Check sources of supply in your area at the time of your project.

Grade	Size				
	2 x 4	2 x 6	2 x 8	2 x 10	2 x 12
Visually Graded					
SS	●	●	●	●	●
No. 1	●	●	●	●	●
No. 2	●	●	●	●	●
No. 3	●	●	●	●	●
Machine Stress Rated (MSR)					
2400f-2.0E	●	●	●	●	●
2250f-1.9E			●	●	●
1950f-1.7E		●	●	●	
Machine Evaluated Lumber (MEL)					
M-23		●	●	●	●
M-14		●			
M-29			●	●	●

Lumber Sizes

Computations for these span tables are based on net lumber dimensions (actual sizes), provided by the *American Softwood Lumber Standard PS 20.*

Nominal Size	Actual Dry Size
(inches)	(inches)
2 x 4	1-1/2 x 3-1/2
2 x 6	1-1/2 x 5-1/2
2 x 8	1-1/2 x 7-1/4
2 x 10	1-1/2 x 9-1/4
2 x 12	1-1/2 x 11-1/4

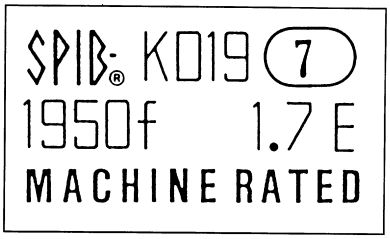
Lumber Identification

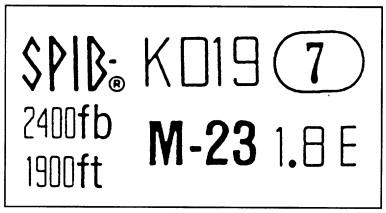
The maximum spans in these tables apply to properly identified material. Lumber must be identified by the grade mark of an agency certified by the Board of Review of the American Lumber Standard Committee (ALSC), and manufactured in accordance with *Product Standard PS 20* published by the U.S. Department of Commerce. A certified grade mark on Southern Pine dimension lumber indicates that the lumber has been properly seasoned by the manufacturer, and that it meets the structural and appearance requirements established for the grade.

Typical Lumber Grade Marks

Visually Graded

Machine Stress Rated (MSR)





Machine Evaluated Lumber (MEL)

Note: Other agencies are accredited by ALSC to inspect and grade all or selected Southern Pine products according to SPIB Grading Rules, including: California Lumber Inspection Service (CLIS); Northeastern Lumber Manufacturers Association (NELMA); Renewable Resource Associates (RRA); West Coast Lumber Inspection Bureau (WCLIB); and Western Wood Products Association (WWPA).

Spans

The maximum spans in these tables were computed using standard engineering design formulas for simple span beams with uniform loads. They assume installation of at least three joists or rafters spaced not more than 24″ on center. The calculated spans assume fully supported members, properly sheathed and nailed on the top edge of the joist or rafter. They do not, however, include composite action of adhesive and sheathing.

Tabulated maximum spans are the distance from face to face of supports, and are given in feet and inches of horizontal projection of the member. This represents the actual length of horizontal members such as floor and ceiling joists. For sloping rafters, the span is also measured along the horizontal projection, with the chart on page 32 providing a convenient tool for calculating the corresponding sloping rafter length.

These span tables were calculated considering four design conditions:

- **Bending (flexure)**
- **Deflection**
- **Compression Perpendicular-to-Grain**
- **Shear Parallel-to-Grain (horizontal shear)**

Only the controlling length rounded to the nearest inch is shown in the tables. Listed spans in this publication have been limited to 26′–0″ based on material availability. Southern Pine is commonly available in lengths up to 20′. Check sources of supply for longer lengths.

Load Duration

Wood has the ability to carry substantially greater maximum loads for short durations than for long durations. Tabulated design values apply to normal loading conditions, and may be multiplied by a load duration factor, C_D, permitted by established engineering design criteria and building code regulations.

Floor and ceiling joists are based on the normal ten-year load duration which implies a load duration factor, C_D, of 1.0. For rafters, the load duration factor, C_D, is typically either 1.15 for two-month snow loads, or 1.25 for 7-day construction loads. Snow loads are presented in rafter tables 19 – 42, while construction loads are presented in rafter tables 43 – 48. All rafter tables are labeled to indicate the load duration factor used.

Moisture Content

Almost all of the spans in these tables are intended for use in covered structures or where the moisture content in use does not exceed 19% for an extended period of time. Three wet-service floor joist tables, tables 14 – 16, are included for structures where the moisture content exceeds 19%.

Deflection

Deflection may be the controlling factor in determining the member size required when appearance or rigidity is important. Control of floor vibration is another important reason to limit deflection.

Application	Deflection Limit
Floor Joists	ℓ/360
Ceiling Joists	ℓ/240
Rafters: *Drywall Ceiling*	ℓ/240
Rafters: *No Finished Ceiling*	ℓ/180

Deflection limits are expressed as a fraction of the span length in inches, and consider only the live load in accordance with established engineering practice for the design of joists and rafters. The most generally used deflection limits are summarized above.

In cases where a stricter deflection limit is desired, and the length is controlled by the ℓ/360 deflection limit, the tabulated span lengths may be multiplied by the factors shown to the right.

Deflection Limit	Adjustment Factor
ℓ/480	0.91
ℓ/600	0.84

Bending

Bending design values used assume a fully supported member, properly sheathed and nailed on one edge of the joist or rafter. The repetitive member use factor, C_r, of 1.15 was included, as allowed in the *NDS*. The load duration factor, C_D, was also applied as appropriate.

Compression Perpendicular-to-Grain

The compression perpendicular-to-grain check assumed a 2.0″ bearing length and rarely controlled the maximum spans. An additional check should be made for shorter bearing lengths, such as for 1.5″ ledgers.

Shear Parallel-to-Grain (Horizontal Shear)

Shear parallel-to-grain was checked using revised shear design criteria in the *2001 National Design Specification®* (*NDS®*) and higher shear design values published in the *2001 NDS® Supplement: Design Values for Wood Construction.* All loads within a distance from supports equal to the depth of the members were neglected when calculating the shear force.

Design Values

Spans in this publication are based on Southern Pine design values published in the *2002 SPIB Standard Grading Rules for Southern Pine Lumber* and listed in the table on page 7. The stress values and modulus of elasticity values assigned to dimension lumber in those rules are based on tests of full-size lumber conducted by SPIB in cooperation with the U.S. Forest Products Laboratory.

Adjustment Factors

The tabulated SPIB design values on page 7 were multiplied by appropriate adjustment factors to determine allowable design values. Adjustment factors used for these tables are described below. For greater detail on design values and adjustment factors, refer to the *2001 NDS®* published by AF&PA or the SPC publication *Southern Pine Use Guide.*

Repetitive Member Factor, C_r – Bending design values, F_b, for dimension lumber 2″ to 4″ thick are multiplied by the repetitive member factor, $C_r = 1.15$, when such members are used as joists, truss chords, rafters, studs, planks, decking or similar members which are in contact or spaced not more than 24″ on centers, are not less than three in number and are joined by floor, roof or other load distributing elements adequate to support the design load.

Load Duration Factor, C_D – Tabulated design values (except modulus of elasticity, E, and compression perpendicular-to-grain, $F_{c\perp}$, based on a deformation limit) are multiplied by the appropriate load duration factor.

Wet Service Factor, C_M – When dimension lumber is used where moisture content will exceed 19 percent for an extended time period, design values are multiplied by the appropriate wet service factors.

Southern Pine Design Values for Selected Grades

Based on 2002 SPIB Grading Rules
Values in pounds per square inch

Dimension Lumber – 2˝ to 4˝ thick, 2˝ and wider

Size	Grade	Extreme Fiber Stress in Bending "F_b" Single Member Uses	Extreme Fiber Stress in Bending "F_b" Repetitive[1] Member Uses	Tension Parallel to Grain "F_t"	Horizontal Shear "F_v"	Compression Perpendicular to Grain "$F_{c\perp}$"	Compression Parallel to Grain "F_c"	Modulus of Elasticity "E"
Visually Graded Lumber								
2x4	Select Structural	2850	3280	1600	175	565	2100	1,800,000
	No. 1	1850	2130	1050	175	565	1850	1,700,000
	No. 2	1500	1720	825	175	565	1650	1,600,000
	No. 3	850	980	475	175	565	975	1,400,000
2x6	Select Structural	2550	2930	1400	175	565	2000	1,800,000
	No. 1	1650	1900	900	175	565	1750	1,700,000
	No. 2	1250	1440	725	175	565	1600	1,600,000
	No. 3	750	865	425	175	565	925	1,400,000
2x8	Select Structural	2300	2650	1300	175	565	1900	1,800,000
	No. 1	1500	1730	825	175	565	1650	1,700,000
	No. 2	1200	1380	650	175	565	1550	1,600,000
	No. 3	700	805	400	175	565	875	1,400,000
2x10	Select Structural	2050	2360	1100	175	565	1850	1,800,000
	No. 1	1300	1500	725	175	565	1600	1,700,000
	No. 2	1050	1210	575	175	565	1500	1,600,000
	No. 3	600	690	325	175	565	850	1,400,000
2x12	Select Structural	1900	2190	1050	175	565	1800	1,800,000
	No. 1	1250	1440	675	175	565	1600	1,700,000
	No. 2	975	1120	550	175	565	1450	1,600,000
	No. 3	575	660	325	175	565	825	1,400,000
Machine Stress Rated (MSR) Lumber								
2x4 thru 2x12	2400f – 2.0E	2400	2760	1925	190	805	1975	2,000,000
	2250f – 1.9E	2250	2590	1750	190	805	1925	1,900,000
	1950f – 1.7E	1950	2240	1375	175	565	1800	1,700,000
Machine Evaluated Lumber (MEL)								
2x4 thru 2x12	M – 23	2400	2760	1900	190	805	1975	1,800,000
	M – 14	1800	2070	1000	175	565	1750	1,700,000
	M – 29	1550	1780	850	175	565	1650	1,700,000

1 Repetitive member uses apply to joists, truss chords, rafters, studs, planks, decking or similar members which are in contact or spaced not more than 24˝ on center, are not less than three (3) in number, and are joined by floor, roof or other load distributing elements adequate to support the design load. The Repetitive Member Factor, $C_r = 1.15$, has been included in the listed Repetitive Member Use design values.

Southern Pine Span Tables

Maximum spans given in feet and inches
Inside to inside of bearings

Table 1 Floor Joists – 30 psf live load, 10 psf dead load, 360 deflection

Sleeping Rooms and Attic Floors

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	12-3	12-0	11-10	10-5	12-9	12-6	12-0	12-3	12-0	12-0
	16.0	11-2	10-11	10-9	9-0	11-7	11-4	10-11	11-2	10-11	10-11
	19.2	10-6	10-4	10-1	8-3	10-10	10-8	10-4	10-6	10-4	10-4
	24.0	9-9	9-7	9-4	7-4	10-1	9-11	9-7	9-9	9-7	9-7
2 x 8	12.0	16-2	15-10	15-7	13-3	16-9	16-6	15-10	16-2	15-10	15-10
	16.0	14-8	14-5	14-2	11-6	15-3	15-0	14-5	14-8	14-5	14-5
	19.2	13-10	13-7	13-4	10-6	14-4	14-1	13-7	13-10	13-7	13-7
	24.0	12-10	12-7	12-4	9-5	13-4	13-1	12-7	12-10	12-7	12-7
2 x 10	12.0	20-8	20-3	19-10	15-8	21-5	21-0	20-3	20-8	20-3	20-3
	16.0	18-9	18-5	18-0	13-7	19-5	19-1	18-5	18-9	18-5	18-5
	19.2	17-8	17-4	16-5	12-5	18-3	18-0	17-4	17-8	17-4	17-4
	24.0	16-5	16-1	14-8	11-1	17-0	16-8	16-1	16-5	16-1	16-1
2 x 12	12.0	25-1	24-8	24-2	18-8	26-0	25-7	24-8	25-1	24-8	24-8
	16.0	22-10	22-5	21-1	16-2	23-7	23-3	22-5	22-10	22-5	22-5
	19.2	21-6	21-1	19-3	14-9	22-3	21-10	21-1	21-6	21-1	21-1
	24.0	19-11	19-6	17-2	13-2	20-8	20-3	19-7	19-11	19-7	19-7

Table 2 Floor Joists – 40 psf live load, 10 psf dead load, 360 deflection

All Rooms Except Sleeping Rooms and Attic Floors

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	11-2	10-11	10-9	9-4	11-7	11-4	10-11	11-2	10-11	10-11
	16.0	10-2	9-11	9-9	8-1	10-6	10-4	9-11	10-2	9-11	9-11
	19.2	9-6	9-4	9-2	7-4	9-10	9-8	9-4	9-6	9-4	9-4
	24.0	8-10	8-8	8-6	6-7	9-2	9-0	8-8	8-10	8-8	8-8
2 x 8	12.0	14-8	14-5	14-2	11-11	15-3	15-0	14-5	14-8	14-5	14-5
	16.0	13-4	13-1	12-10	10-3	13-10	13-7	13-1	13-4	13-1	13-1
	19.2	12-7	12-4	12-1	9-5	13-0	12-10	12-4	12-7	12-4	12-4
	24.0	11-8	11-5	11-0	8-5	12-1	11-11	11-5	11-8	11-5	11-5
2 x 10	12.0	18-9	18-5	18-0	14-0	19-5	19-1	18-5	18-9	18-5	18-5
	16.0	17-0	16-9	16-1	12-2	17-8	17-4	16-9	17-0	16-9	16-9
	19.2	16-0	15-9	14-8	11-1	16-7	16-4	15-9	16-0	15-9	15-9
	24.0	14-11	14-7	13-1	9-11	15-5	15-2	14-7	14-11	14-7	14-7
2 x 12	12.0	22-10	22-5	21-9	16-8	23-7	23-3	22-5	22-10	22-5	22-5
	16.0	20-9	20-4	18-10	14-6	21-6	21-1	20-4	20-9	20-4	20-4
	19.2	19-6	19-2	17-2	13-2	20-2	19-10	19-2	19-6	19-2	19-2
	24.0	18-1	17-5	15-5	11-10	18-9	18-5	17-9	18-1	17-9	17-9

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 3 FLOOR JOISTS – 50 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

OFFICE SPACE (CONCENTRATED LOAD CHECKS MAY BE REQUIRED)

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	10-4	10-2	9-11	8-6	10-9	10-6	10-2	10-4	10-2	10-2
	16.0	9-5	9-3	9-1	7-4	9-9	9-7	9-3	9-5	9-3	9-3
	19.2	8-10	8-8	8-6	6-9	9-2	9-0	8-8	8-10	8-8	8-8
	24.0	8-3	8-1	7-9	6-0	8-6	8-4	8-1	8-3	8-1	8-1
2x8	12.0	13-8	13-5	13-1	10-10	14-2	13-11	13-5	13-8	13-5	13-5
	16.0	12-5	12-2	11-11	9-5	12-10	12-7	12-2	12-5	12-2	12-2
	19.2	11-8	11-5	11-3	8-7	12-1	11-11	11-5	11-8	11-5	11-5
	24.0	10-10	10-8	10-0	7-8	11-3	11-0	10-8	10-10	10-8	10-8
2x10	12.0	17-5	17-1	16-9	12-10	18-0	17-9	17-1	17-5	17-1	17-1
	16.0	15-10	15-6	14-8	11-1	16-5	16-1	15-6	15-10	15-6	15-6
	19.2	14-11	14-7	13-5	10-1	15-5	15-2	14-7	14-11	14-7	14-7
	24.0	13-10	13-4	12-0	9-1	14-4	14-1	13-7	13-10	13-7	13-7
2x12	12.0	21-2	20-9	19-10	15-3	21-11	21-7	20-9	21-2	20-9	20-9
	16.0	19-3	18-10	17-2	13-2	19-11	19-7	18-10	19-3	18-10	18-10
	19.2	18-1	17-9	15-8	12-1	18-9	18-5	17-9	18-1	17-9	17-9
	24.0	16-10	15-11	14-0	10-9	17-5	17-1	16-6	16-10	16-6	16-6

TABLE 4 FLOOR JOISTS – 60 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

CORRIDORS

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	9-9	9-7	9-4	7-11	10-1	9-11	9-7	9-9	9-7	9-7
	16.0	8-10	8-8	8-6	6-10	9-2	9-0	8-8	8-10	8-8	8-8
	19.2	8-4	8-2	8-0	6-3	8-8	8-6	8-2	8-4	8-2	8-2
	24.0	7-9	7-7	7-2	5-7	8-0	7-10	7-7	7-9	7-7	7-7
2x8	12.0	12-10	12-7	12-4	10-0	13-4	13-1	12-7	12-10	12-7	12-7
	16.0	11-8	11-5	11-3	8-8	12-1	11-11	11-5	11-8	11-5	11-5
	19.2	11-0	10-9	10-5	7-11	11-4	11-2	10-9	11-0	10-9	10-9
	24.0	10-2	10-0	9-4	7-1	10-7	10-5	10-0	10-2	10-0	10-0
2x10	12.0	16-5	16-1	15-8	11-10	17-0	16-8	16-1	16-5	16-1	16-1
	16.0	14-11	14-7	13-7	10-3	15-5	15-2	14-7	14-11	14-7	14-7
	19.2	14-0	13-9	12-5	9-4	14-6	14-3	13-9	14-0	13-9	13-9
	24.0	13-0	12-4	11-1	8-5	13-6	13-3	12-9	13-0	12-9	12-9
2x12	12.0	19-11	19-7	18-5	14-1	20-8	20-3	19-7	19-11	19-7	19-7
	16.0	18-1	17-9	15-11	12-3	18-9	18-5	17-9	18-1	17-9	17-9
	19.2	17-0	16-5	14-6	11-2	17-8	17-4	16-9	17-0	16-9	16-9
	24.0	15-10	14-9	13-0	10-0	16-5	16-1	15-6	15-10	15-6	15-6

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 5 FLOOR JOISTS – 40 PSF LIVE LOAD, 20 PSF DEAD LOAD, 360 DEFLECTION

ALL ROOMS EXCEPT SLEEPING ROOMS AND ATTIC FLOORS (MAXIMUM 1.5 LIGHTWEIGHT CONCRETE)

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	11-2	10-11	10-9	8-6	11-7	11-4	10-11	11-2	10-11	10-11
	16.0	10-2	9-11	9-6	7-4	10-6	10-4	9-11	10-2	9-11	9-11
	19.2	9-6	9-4	8-8	6-9	9-10	9-8	9-4	9-6	9-4	9-4
	24.0	8-10	8-8	7-9	6-0	9-2	9-0	8-8	8-10	8-8	8-8
2x8	12.0	14-8	14-5	14-2	10-10	15-3	15-0	14-5	14-8	14-5	14-5
	16.0	13-4	13-1	12-4	9-5	13-10	13-7	13-1	13-4	13-1	13-1
	19.2	12-7	12-4	11-3	8-7	13-0	12-10	12-4	12-7	12-4	12-4
	24.0	11-8	11-3	10-0	7-8	12-1	11-11	11-5	11-8	11-5	11-5
2x10	12.0	18-9	18-5	16-11	12-10	19-5	19-1	18-5	18-9	18-5	18-5
	16.0	17-0	16-4	14-8	11-1	17-8	17-4	16-9	17-0	16-9	16-9
	19.2	16-0	14-11	13-5	10-1	16-7	16-4	15-9	16-0	15-9	15-9
	24.0	14-11	13-4	12-0	9-1	15-5	15-2	14-7	14-11	14-7	14-7
2x12	12.0	22-10	22-5	19-10	15-3	23-7	23-3	22-5	22-10	22-5	22-5
	16.0	20-9	19-6	17-2	13-2	21-6	21-1	20-4	20-9	20-4	20-4
	19.2	19-6	17-9	15-8	12-1	20-2	19-10	19-2	19-6	19-2	19-2
	24.0	18-1	15-11	14-0	10-9	18-9	18-5	17-9	18-1	17-9	17-8

TABLE 6 FLOOR JOISTS – 50 PSF LIVE LOAD, 20 PSF DEAD LOAD, 360 DEFLECTION

OFFICE SPACE (CONCENTRATED LOAD CHECKS MAY BE REQUIRED; MAXIMUM 1.5 LIGHTWEIGHT CONCRETE)

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	10-4	10-2	9-11	7-11	10-9	10-6	10-2	10-4	10-2	10-2
	16.0	9-5	9-3	8-10	6-10	9-9	9-7	9-3	9-5	9-3	9-3
	19.2	8-10	8-8	8-1	6-3	9-2	9-0	8-8	8-10	8-8	8-8
	24.0	8-3	8-1	7-2	5-7	8-6	8-4	8-1	8-3	8-1	8-0
2x8	12.0	13-8	13-5	13-1	10-0	14-2	13-11	13-5	13-8	13-5	13-5
	16.0	12-5	12-2	11-5	8-8	12-10	12-7	12-2	12-5	12-2	12-2
	19.2	11-8	11-5	10-5	7-11	12-1	11-11	11-5	11-8	11-5	11-5
	24.0	10-10	10-5	9-4	7-1	11-3	11-0	10-8	10-10	10-8	10-7
2x10	12.0	17-5	17-1	15-8	11-10	18-0	17-9	17-1	17-5	17-1	17-1
	16.0	15-10	15-1	13-7	10-3	16-5	16-1	15-6	15-10	15-6	15-6
	19.2	14-11	13-10	12-5	9-4	15-5	15-2	14-7	14-11	14-7	14-7
	24.0	13-10	12-4	11-1	8-5	14-4	14-1	13-7	13-10	13-7	13-6
2x12	12.0	21-2	20-9	18-5	14-1	21-11	21-7	20-9	21-2	20-9	20-9
	16.0	19-3	18-0	15-11	12-3	19-11	19-7	18-10	19-3	18-10	18-10
	19.2	18-1	16-5	14-6	11-2	18-9	18-5	17-9	18-1	17-9	17-9
	24.0	16-10	14-9	13-0	10-0	17-5	17-1	16-6	16-10	16-6	16-5

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 7 FLOOR JOISTS – 60 PSF LIVE LOAD, 20 PSF DEAD LOAD, 360 DEFLECTION

CORRIDORS (MAXIMUM 1.5 LIGHTWEIGHT CONCRETE)

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	9-9	9-7	9-4	7-4	10-1	9-11	9-7	9-9	9-7	9-7
	16.0	8-10	8-8	8-3	6-5	9-2	9-0	8-8	8-10	8-8	8-8
	19.2	8-4	8-2	7-6	5-10	8-8	8-6	8-2	8-4	8-2	8-2
	24.0	7-9	7-7	6-9	5-3	8-0	7-10	7-7	7-9	7-7	7-6
2x8	12.0	12-10	12-7	12-4	9-5	13-4	13-1	12-7	12-10	12-7	12-7
	16.0	11-8	11-5	10-8	8-2	12-1	11-11	11-5	11-8	11-5	11-5
	19.2	11-0	10-9	9-9	7-5	11-4	11-2	10-9	11-0	10-9	10-9
	24.0	10-2	9-9	8-8	6-8	10-7	10-5	10-0	10-2	10-0	9-11
2x10	12.0	16-5	16-1	14-8	11-1	17-0	16-8	16-1	16-5	16-1	16-1
	16.0	14-11	14-2	12-8	9-7	15-5	15-2	14-7	14-11	14-7	14-7
	19.2	14-0	12-11	11-7	8-9	14-6	14-3	13-9	14-0	13-9	13-9
	24.0	13-0	11-7	10-4	7-10	13-6	13-3	12-9	13-0	12-9	12-7
2x12	12.0	19-11	19-6	17-2	13-2	20-8	20-3	19-7	19-11	19-7	19-7
	16.0	18-1	16-10	14-11	11-5	18-9	18-5	17-9	18-1	17-9	17-9
	19.2	17-0	15-5	13-7	10-5	17-8	17-4	16-9	17-0	16-9	16-9
	24.0	15-10	13-9	12-2	9-4	16-5	16-1	15-6	15-10	15-6	15-4

TABLE 8 FLOOR JOISTS – 75 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	9-1	8-10	8-8	7-2	9-4	9-2	8-10	9-1	8-10	8-10
	16.0	8-3	8-1	7-11	6-2	8-6	8-4	8-1	8-3	8-1	8-1
	19.2	7-9	7-7	7-4	5-8	8-0	7-10	7-7	7-9	7-7	7-7
	24.0	7-2	7-1	6-6	5-1	7-5	7-4	7-1	7-2	7-1	7-1
2x8	12.0	11-11	11-8	11-6	9-1	12-4	12-2	11-8	11-11	11-8	11-8
	16.0	10-10	10-8	10-4	7-11	11-3	11-0	10-8	10-10	10-8	10-8
	19.2	10-2	10-0	9-5	7-2	10-7	10-5	10-0	10-2	10-0	10-0
	24.0	9-6	9-3	8-5	6-5	9-10	9-8	9-3	9-6	9-3	9-3
2x10	12.0	15-2	14-11	14-3	10-9	15-9	15-6	14-11	15-2	14-11	14-11
	16.0	13-10	13-7	12-4	9-4	14-4	14-1	13-7	13-10	13-7	13-7
	19.2	13-0	12-6	11-3	8-6	13-6	13-3	12-9	13-0	12-9	12-9
	24.0	12-1	11-2	10-1	7-7	12-6	12-3	11-10	12-1	11-10	11-10
2x12	12.0	18-6	18-2	16-8	12-10	19-2	18-10	18-2	18-6	18-2	18-2
	16.0	16-10	16-4	14-5	11-1	17-5	17-1	16-6	16-10	16-6	16-6
	19.2	15-10	14-11	13-2	10-2	16-5	16-1	15-6	15-10	15-6	15-6
	24.0	14-8	13-4	11-10	9-1	15-2	14-11	14-5	14-8	14-5	14-5

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 9 FLOOR JOISTS – 80 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	8-10	8-8	8-6	6-11	9-2	9-0	8-8	8-10	8-8	8-8
	16.0	8-0	7-11	7-9	6-0	8-4	8-2	7-11	8-0	7-11	7-11
	19.2	7-7	7-5	7-1	5-6	7-10	7-8	7-5	7-7	7-5	7-5
	24.0	7-0	6-11	6-4	4-11	7-3	7-2	6-11	7-0	6-11	6-11
2x8	12.0	11-8	11-5	11-3	8-10	12-1	11-11	11-5	11-8	11-5	11-5
	16.0	10-7	10-5	10-0	7-8	11-0	10-10	10-5	10-7	10-5	10-5
	19.2	10-0	9-9	9-2	7-0	10-4	10-2	9-9	10-0	9-9	9-9
	24.0	9-3	9-1	8-2	6-3	9-7	9-5	9-1	9-3	9-1	9-1
2x10	12.0	14-11	14-7	13-10	10-5	15-5	15-2	14-7	14-11	14-7	14-7
	16.0	13-6	13-3	12-0	9-1	14-0	13-9	13-3	13-6	13-3	13-3
	19.2	12-9	12-2	10-11	8-3	13-2	12-11	12-6	12-9	12-6	12-6
	24.0	11-10	10-11	9-9	7-5	12-3	12-0	11-7	11-10	11-7	11-7
2x12	12.0	18-1	17-9	16-3	12-5	18-9	18-5	17-9	18-1	17-9	17-9
	16.0	16-5	15-11	14-0	10-9	17-0	16-9	16-2	16-5	16-2	16-2
	19.2	15-6	14-6	12-10	9-10	16-0	15-9	15-2	15-6	15-2	15-2
	24.0	14-4	13-0	11-6	8-10	14-11	14-8	14-1	14-4	14-1	14-1

TABLE 10 FLOOR JOISTS – 90 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	8-6	8-4	8-2	6-7	8-10	8-8	8-4	8-6	8-4	8-4
	16.0	7-9	7-7	7-4	5-9	8-0	7-10	7-7	7-9	7-7	7-7
	19.2	7-3	7-2	6-9	5-3	7-6	7-5	7-2	7-3	7-2	7-2
	24.0	6-9	6-8	6-0	4-8	7-0	6-11	6-8	6-9	6-8	6-8
2x8	12.0	11-3	11-0	10-9	8-5	11-7	11-5	11-0	11-3	11-0	11-0
	16.0	10-2	10-0	9-6	7-3	10-7	10-5	10-0	10-2	10-0	10-0
	19.2	9-7	9-5	8-8	6-8	9-11	9-9	9-5	9-7	9-5	9-5
	24.0	8-11	8-8	7-9	5-11	9-3	9-1	8-9	8-11	8-9	8-9
2x10	12.0	14-4	14-0	13-1	9-11	14-10	14-7	14-0	14-4	14-0	14-0
	16.0	13-0	12-8	11-4	8-7	13-6	13-3	12-9	13-0	12-9	12-9
	19.2	12-3	11-7	10-4	7-10	12-8	12-6	12-0	12-3	12-0	12-0
	24.0	11-4	10-4	9-3	7-0	11-9	11-7	11-2	11-4	11-2	11-2
2x12	12.0	17-5	17-1	15-5	11-10	18-0	17-9	17-1	17-5	17-1	17-1
	16.0	15-10	15-1	13-4	10-3	16-5	16-1	15-6	15-10	15-6	15-6
	19.2	14-11	13-9	12-2	9-4	15-5	15-2	14-7	14-11	14-7	14-7
	24.0	13-10	12-4	10-10	8-4	14-4	14-1	13-7	13-10	13-7	13-7

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 11 FLOOR JOISTS – 100 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	8-3	8-1	7-11	6-3	8-6	8-4	8-1	8-3	8-1	8-1
	16.0	7-6	7-4	7-0	5-5	7-9	7-7	7-4	7-6	7-4	7-4
	19.2	7-0	6-11	6-5	5-0	7-3	7-2	6-11	7-0	6-11	6-11
	24.0	6-6	6-5	5-9	4-5	6-9	6-8	6-5	6-6	6-5	6-5
2x8	12.0	10-10	10-8	10-5	8-0	11-3	11-0	10-8	10-10	10-8	10-8
	16.0	9-10	9-8	9-1	6-11	10-2	10-0	9-8	9-10	9-8	9-8
	19.2	9-3	9-1	8-3	6-4	9-7	9-5	9-1	9-3	9-1	9-1
	24.0	8-7	8-3	7-5	5-8	8-11	8-9	8-5	8-7	8-5	8-5
2x10	12.0	13-10	13-7	12-6	9-5	14-4	14-1	13-7	13-10	13-7	13-7
	16.0	12-7	12-1	10-10	8-2	13-0	12-9	12-4	12-7	12-4	12-4
	19.2	11-10	11-0	9-11	7-6	12-3	12-0	11-7	11-10	11-7	11-7
	24.0	11-0	9-10	8-10	6-8	11-4	11-2	10-9	11-0	10-9	10-9
2x12	12.0	16-10	16-6	14-8	11-3	17-5	17-1	16-6	16-10	16-6	16-6
	16.0	15-3	14-5	12-8	9-9	15-10	15-7	15-0	15-3	15-0	15-0
	19.2	14-4	13-2	11-7	8-11	14-11	14-8	14-1	14-4	14-1	14-1
	24.0	13-4	11-9	10-4	8-0	13-10	13-7	13-1	13-4	13-1	13-1

TABLE 12 FLOOR JOISTS – 125 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	7-8	7-6	7-4	5-8	7-11	7-9	7-6	7-8	7-6	7-6
	16.0	6-11	6-10	6-4	4-11	7-2	7-1	6-10	6-11	6-10	6-10
	19.2	6-6	6-5	5-10	4-6	6-9	6-8	6-5	6-6	6-5	6-5
	24.0	6-1	5-11	5-2	4-0	6-3	6-2	5-11	6-1	5-11	5-9
2x8	12.0	10-1	9-10	9-6	7-3	10-5	10-3	9-10	10-1	9-10	9-10
	16.0	9-2	9-0	8-2	6-3	9-6	9-4	9-0	9-2	9-0	9-0
	19.2	8-7	8-4	7-6	5-9	8-11	8-9	8-5	8-7	8-5	8-5
	24.0	8-0	7-6	6-8	5-1	8-3	8-1	7-10	8-0	7-10	7-7
2x10	12.0	12-10	12-7	11-4	8-6	13-3	13-1	12-7	12-10	12-7	12-7
	16.0	11-8	10-11	9-9	7-5	12-1	11-10	11-5	11-8	11-5	11-5
	19.2	11-0	9-11	8-11	6-9	11-4	11-2	10-9	11-0	10-9	10-9
	24.0	10-2	8-11	8-0	6-0	10-7	10-4	10-0	10-2	10-0	9-8
2x12	12.0	15-7	15-0	13-3	10-2	16-2	15-11	15-4	15-7	15-4	15-4
	16.0	14-2	13-0	11-6	8-10	14-8	14-5	13-11	14-2	13-11	13-11
	19.2	13-4	11-10	10-6	8-0	13-10	13-7	13-1	13-4	13-1	13-1
	24.0	12-5	10-7	9-4	7-2	12-10	12-7	12-2	12-5	12-2	11-10

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 13 FLOOR JOISTS – 150 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	7-2	7-1	6-9	5-3	7-5	7-4	7-1	7-2	7-1	7-1
	16.0	6-6	6-5	5-10	4-6	6-9	6-8	6-5	6-6	6-5	6-5
	19.2	6-2	6-0	5-4	4-1	6-4	6-3	6-0	6-2	6-0	5-11
	24.0	5-8	5-6	4-9	3-8	5-11	5-10	5-7	5-8	5-7	5-4
2x8	12.0	9-6	9-3	8-8	6-8	9-10	9-8	9-3	9-6	9-3	9-3
	16.0	8-7	8-5	7-6	5-9	8-11	8-9	8-5	8-7	8-5	8-5
	19.2	8-1	7-8	6-10	5-3	8-5	8-3	7-11	8-1	7-11	7-10
	24.0	7-6	6-10	6-2	4-8	7-9	7-8	7-4	7-6	7-4	7-0
2x10	12.0	12-1	11-7	10-4	7-10	12-6	12-3	11-10	12-1	11-10	11-10
	16.0	11-0	10-0	9-0	6-9	11-4	11-2	10-9	11-0	10-9	10-9
	19.2	10-4	9-2	8-2	6-2	10-8	10-6	10-2	10-4	10-2	10-0
	24.0	9-7	8-2	7-4	5-7	9-11	9-9	9-5	9-7	9-5	8-11
2x12	12.0	14-8	13-9	12-2	9-4	15-2	14-11	14-5	14-8	14-5	14-5
	16.0	13-4	11-11	10-6	8-1	13-10	13-7	13-1	13-4	13-1	13-1
	19.2	12-7	10-11	9-7	7-5	13-0	12-9	12-4	12-7	12-4	12-1
	24.0	10-7	9-9	8-7	6-7	12-1	11-10	10-7	11-8	10-7	10-7

TABLE 14 WET-SERVICE FLOOR JOISTS – 40 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

DECKS; MOISTURE CONTENT EXCEEDS 19%

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	10-9	10-7	10-4	9-4	11-2	11-0	10-7	10-9	10-7	10-7
	16.0	9-9	9-7	9-5	8-1	10-2	10-0	9-7	9-9	9-7	9-7
	19.2	9-2	9-0	8-9	7-4	9-6	9-4	9-0	9-2	9-0	9-0
	24.0	8-7	8-5	7-10	6-7	8-10	8-8	8-5	8-7	8-5	8-5
2x8	12.0	14-2	13-11	13-8	11-11	14-8	14-5	13-11	14-2	13-11	13-11
	16.0	12-11	12-8	12-5	10-3	13-4	13-2	12-8	12-11	12-8	12-8
	19.2	12-2	11-11	11-4	9-5	12-7	12-4	11-11	12-2	11-11	11-11
	24.0	11-3	11-1	10-2	8-5	11-8	11-6	11-1	11-3	11-1	11-1
2x10	12.0	18-1	17-9	17-5	14-0	18-9	18-5	17-9	18-1	17-9	17-9
	16.0	16-5	16-2	15-10	12-2	17-0	16-9	16-2	16-5	16-2	16-2
	19.2	15-6	15-1	14-8	11-1	16-0	15-9	15-2	15-6	15-2	15-2
	24.0	14-4	13-6	13-1	9-11	14-11	14-8	14-1	14-4	14-1	14-1
2x12	12.0	22-0	21-7	21-2	16-8	22-10	22-5	21-7	22-0	21-7	21-7
	16.0	20-0	19-8	18-10	14-6	20-9	20-4	19-8	20-0	19-8	19-8
	19.2	18-10	17-11	17-2	13-2	19-6	19-2	18-6	18-10	18-6	18-6
	24.0	17-6	16-1	15-5	11-10	18-1	17-10	17-2	17-6	17-2	17-2

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 15 WET-SERVICE FLOOR JOISTS – 60 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

DECKS; MOISTURE CONTENT EXCEEDS 19%

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	9-5	9-3	9-1	7-11	9-9	9-7	9-3	9-5	9-3	9-3
	16.0	8-7	8-5	8-1	6-10	8-10	8-8	8-5	8-7	8-5	8-5
	19.2	8-0	7-11	7-5	6-3	8-4	8-2	7-11	8-0	7-11	7-11
	24.0	7-6	7-4	6-8	5-7	7-9	7-7	7-4	7-6	7-4	7-4
2x8	12.0	12-5	12-2	11-11	10-0	12-10	12-7	12-2	12-5	12-2	12-2
	16.0	11-3	11-1	10-6	8-8	11-8	11-6	11-1	11-3	11-1	11-1
	19.2	10-7	10-5	9-7	7-11	11-0	10-10	10-5	10-7	10-5	10-5
	24.0	9-10	9-7	8-7	7-1	10-2	10-0	9-8	9-10	9-8	9-8
2x10	12.0	15-10	15-6	15-2	11-10	16-5	16-1	15-6	15-10	15-6	15-6
	16.0	14-4	13-11	13-7	10-3	14-11	14-8	14-1	14-4	14-1	14-1
	19.2	13-6	12-9	12-5	9-4	14-0	13-9	13-3	13-6	13-3	13-3
	24.0	12-7	11-5	11-1	8-5	13-0	12-9	12-4	12-7	12-4	12-4
2x12	12.0	19-3	18-10	18-5	14-1	19-11	19-7	18-10	19-3	18-10	18-10
	16.0	17-6	16-7	15-11	12-3	18-1	17-10	17-2	17-6	17-2	17-2
	19.2	16-5	15-2	14-6	11-2	17-0	16-9	16-2	16-5	16-2	16-2
	24.0	15-3	13-7	13-0	10-0	15-10	15-7	15-0	15-3	15-0	15-0

TABLE 16 WET-SERVICE FLOOR JOISTS – 100 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

DECKS; MOISTURE CONTENT EXCEEDS 19%

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	7-11	7-9	7-6	6-3	8-3	8-1	7-9	7-11	7-9	7-9
	16.0	7-2	7-1	6-6	5-5	7-6	7-4	7-1	7-2	7-1	7-1
	19.2	6-9	6-8	5-11	5-0	7-0	6-11	6-8	6-9	6-8	6-7
	24.0	6-4	6-1	5-3	4-5	6-6	6-5	6-2	6-4	6-2	5-11
2x8	12.0	10-5	10-3	9-8	8-0	10-10	10-8	10-3	10-5	10-3	10-3
	16.0	9-6	9-4	8-4	6-11	9-10	9-8	9-4	9-6	9-4	9-4
	19.2	8-11	8-7	7-8	6-4	9-3	9-1	8-9	8-11	8-9	8-8
	24.0	8-4	7-8	6-10	5-8	8-7	8-5	8-2	8-4	8-2	7-9
2x10	12.0	13-4	12-10	12-6	9-5	13-10	13-7	13-1	13-4	13-1	13-1
	16.0	12-1	11-1	10-10	8-2	12-7	12-4	11-11	12-1	11-11	11-11
	19.2	11-5	10-2	9-11	7-6	11-10	11-7	11-2	11-5	11-2	11-1
	24.0	10-4	9-1	8-10	6-8	11-0	10-9	10-4	10-7	10-4	9-11
2x12	12.0	16-3	15-4	14-8	11-3	16-10	16-6	15-11	16-3	15-11	15-11
	16.0	14-9	13-3	12-8	9-9	15-3	15-0	14-6	14-9	14-6	14-6
	19.2	12-11	12-1	11-7	8-11	14-4	14-1	12-11	13-10	12-11	12-11
	24.0	10-4	10-4	10-4	8-0	13-4	13-1	10-4	12-11	10-4	10-4

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 17 CEILING JOISTS – 10 PSF LIVE LOAD, 5 PSF DEAD LOAD, 240 DEFLECTION

DRYWALL CEILING; NO ATTIC STORAGE

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x4	12.0	12-11	12-8	12-5	11-6	13-4	13-2	12-8	12-11	12-8	12-8
	16.0	11-9	11-6	11-3	10-0	12-2	11-11	11-6	11-9	11-6	11-6
	19.2	11-0	10-10	10-7	9-1	11-5	11-3	10-10	11-0	10-10	10-10
	24.0	10-3	10-0	9-10	8-2	10-7	10-5	10-0	10-3	10-0	10-0
2x6	12.0	20-3	19-11	19-6	17-0	21-0	20-8	19-11	20-3	19-11	19-11
	16.0	18-5	18-1	17-8	14-9	19-1	18-9	18-1	18-5	18-1	18-1
	19.2	17-4	17-0	16-8	13-6	17-11	17-8	17-0	17-4	17-0	17-0
	24.0	16-1	15-9	15-6	12-0	16-8	16-4	15-9	16-1	15-9	15-9
2x8	12.0	26-0*	26-0*	25-8	21-8	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-3	23-10	23-4	18-9	25-2	24-8	23-10	24-3	23-10	23-10
	19.2	22-10	22-5	21-11	17-2	23-8	23-3	22-5	22-10	22-5	22-5
	24.0	21-2	20-10	20-1	15-4	21-11	21-7	20-10	21-2	20-10	20-10
2x10	12.0	26-0*	26-0*	26-0*	25-7	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	26-0*	22-2	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	26-0*	26-0*	20-3	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	26-0*	23-11	18-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*

TABLE 18 CEILING JOISTS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 240 DEFLECTION

DRYWALL CEILING; NO FUTURE ROOM DEVELOPMENT, BUT LIMITED ATTIC STORAGE AVAILABLE

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x4	12.0	10-3	10-0	9-10	8-2	10-7	10-5	10-0	10-3	10-0	10-0
	16.0	9-4	9-1	8-11	7-1	9-8	9-6	9-1	9-4	9-1	9-1
	19.2	8-9	8-7	8-5	6-5	9-1	8-11	8-7	8-9	8-7	8-7
	24.0	8-1	8-0	7-8	5-9	8-5	8-3	8-0	8-1	8-0	7-9
2x6	12.0	16-1	15-9	15-6	12-0	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	13-6	10-5	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	12-3	9-6	14-3	14-0	13-6	13-9	13-6	13-6
	24.0	12-9	12-6	11-0	8-6	13-3	13-0	12-6	12-9	12-6	12-3
2x8	12.0	21-2	20-10	20-1	15-4	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-11	17-5	13-3	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-9	15-10	12-1	18-9	18-5	17-9	18-2	17-9	17-9
	24.0	16-10	15-10	14-2	10-10	17-5	17-2	16-6	16-10	16-6	16-2
2x10	12.0	26-0*	26-0*	23-11	18-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	23-1	20-9	15-8	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	21-1	18-11	14-4	23-11	23-7	22-8	23-2	22-8	22-8
	24.0	21-6	18-10	16-11	12-10	22-3	21-10	21-1	21-6	21-1	20-

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 19 RAFTERS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

LIGHT ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	16-1	15-9	15-6	12-11	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	14-1	11-2	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	13-2	10-2	14-3	14-0	13-6	13-9	13-6	13-6
	24.0	12-9	12-6	11-9	9-2	13-3	13-0	12-6	12-9	12-6	12-6
2x8	12.0	21-2	20-10	20-5	16-5	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-11	18-6	14-3	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-9	17-0	13-0	18-9	18-5	17-9	18-2	17-9	17-9
	24.0	16-10	16-6	15-3	11-8	17-5	17-2	16-6	16-10	16-6	16-6
2x10	12.0	26-0*	26-0*	25-8	19-5	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	24-1	22-3	16-10	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	22-7	20-4	15-4	23-11	23-7	22-8	23-2	22-8	22-8
	24.0	21-6	20-3	18-2	13-9	22-3	21-10	21-1	21-6	21-1	21-1
2x12	12.0	26-0*	26-0*	26-0*	23-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	26-0*	20-0	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	26-0*	23-10	18-3	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	24-1	21-3	16-4	26-0*	26-0*	25-7	26-0*	25-7	25-7

TABLE 20 RAFTERS – 30 PSF LIVE LOAD, 10 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

LIGHT ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	14-1	13-9	13-6	11-2	14-7	14-4	13-9	14-1	13-9	13-9
	16.0	12-9	12-6	12-3	9-8	13-3	13-0	12-6	12-9	12-6	12-6
	19.2	12-0	11-9	11-5	8-10	12-5	12-3	11-9	12-0	11-9	11-9
	24.0	11-2	10-11	10-2	7-11	11-7	11-4	10-11	11-2	10-11	10-11
2x8	12.0	18-6	18-2	17-10	14-3	19-2	18-10	18-2	18-6	18-2	18-2
	16.0	16-10	16-6	16-2	12-4	17-5	17-2	16-6	16-10	16-6	16-6
	19.2	15-10	15-6	14-9	11-3	16-5	16-1	15-6	15-10	15-6	15-6
	24.0	14-8	14-5	13-2	10-1	15-3	15-0	14-5	14-8	14-5	14-5
2x10	12.0	23-8	23-2	22-3	16-10	24-6	24-1	23-2	23-8	23-2	23-2
	16.0	21-6	21-1	19-3	14-7	22-3	21-10	21-1	21-6	21-1	21-1
	19.2	20-2	19-7	17-7	13-4	20-11	20-7	19-10	20-2	19-10	19-10
	24.0	18-9	17-6	15-9	11-11	19-5	19-1	18-5	18-9	18-5	18-5
2x12	12.0	26-0*	26-0*	26-0*	20-0	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	25-7	22-7	17-4	26-0*	26-0*	25-7	26-0*	25-7	25-7
	19.2	24-7	23-4	20-7	15-10	25-5	25-0	24-1	24-7	24-1	24-1
	24.0	22-10	20-11	18-5	14-2	23-7	23-3	22-5	22-10	22-5	22-5

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

Table 21 Rafters – 40 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15

Light Roofing; Drywall Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	12-9	12-6	12-3	10-0	13-3	13-0	12-6	12-9	12-6	12-6
	16.0	11-7	11-5	11-2	8-8	12-0	11-10	11-5	11-7	11-5	11-5
	19.2	10-11	10-8	10-2	7-11	11-4	11-1	10-8	10-11	10-8	10-8
	24.0	10-2	9-11	9-2	7-1	10-6	10-4	9-11	10-2	9-11	9-11
2 x 8	12.0	16-10	16-6	16-2	12-9	17-5	17-2	16-6	16-10	16-6	16-6
	16.0	15-3	15-0	14-5	11-0	15-10	15-7	15-0	15-3	15-0	15-0
	19.2	14-5	14-1	13-2	10-1	14-11	14-8	14-1	14-5	14-1	14-1
	24.0	13-4	13-1	11-9	9-0	13-10	13-7	13-1	13-4	13-1	13-1
2 x 10	12.0	21-6	21-1	19-11	15-1	22-3	21-10	21-1	21-6	21-1	21-1
	16.0	19-6	19-2	17-3	13-0	20-2	19-10	19-2	19-6	19-2	19-2
	19.2	18-4	17-6	15-9	11-11	19-0	18-8	18-0	18-4	18-0	18-0
	24.0	17-0	15-8	14-1	10-8	17-8	17-4	16-9	17-0	16-9	16-9
2 x 12	12.0	26-0*	25-7	23-4	17-11	26-0*	26-0*	25-7	26-0*	25-7	25-7
	16.0	23-9	22-10	20-2	15-6	24-7	24-2	23-3	23-9	23-3	23-3
	19.2	22-4	20-11	18-5	14-2	23-1	22-9	21-11	22-4	21-11	21-11
	24.0	20-9	18-8	16-6	12-8	21-6	21-1	20-4	20-9	20-4	20-4

Table 22 Rafters – 50 psf live load, 10 psf dead load, 240 deflection, C_D = 1.15

Light Roofing; Drywall Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	11-10	11-8	11-5	9-2	12-3	12-1	11-8	11-10	11-8	11-8
	16.0	10-9	10-7	10-2	7-11	11-2	11-0	10-7	10-9	10-7	10-7
	19.2	10-2	9-11	9-4	7-3	10-6	10-4	9-11	10-2	9-11	9-11
	24.0	9-5	9-3	8-4	6-5	9-9	9-7	9-3	9-5	9-3	9-3
2 x 8	12.0	15-7	15-4	15-0	11-8	16-2	15-11	15-4	15-7	15-4	15-4
	16.0	14-2	13-11	13-2	10-1	14-8	14-5	13-11	14-2	13-11	13-11
	19.2	13-4	13-1	12-0	9-2	13-10	13-7	13-1	13-4	13-1	13-1
	24.0	12-5	12-0	10-9	8-3	12-10	12-7	12-2	12-5	12-2	12-2
2 x 10	12.0	19-11	19-7	18-2	13-9	20-8	20-3	19-7	19-11	19-7	19-7
	16.0	18-1	17-6	15-9	11-11	18-9	18-5	17-9	18-1	17-9	17-9
	19.2	17-0	16-0	14-4	10-10	17-8	17-4	16-9	17-0	16-9	16-9
	24.0	15-10	14-4	12-10	9-9	16-5	16-1	15-6	15-10	15-6	15-6
2 x 12	12.0	24-3	23-9	21-3	16-4	25-1	24-8	23-9	24-3	23-9	23-9
	16.0	22-0	20-11	18-5	14-2	22-10	22-5	21-7	22-0	21-7	21-7
	19.2	20-9	19-1	16-10	12-11	21-6	21-1	20-4	20-9	20-4	20-4
	24.0	19-3	17-1	15-1	11-7	19-11	19-7	18-10	19-3	18-10	18-10

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 23 RAFTERS – 20 PSF LIVE LOAD, 15 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	16-1	15-9	15-5	11-11	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	13-4	10-4	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	12-2	9-5	14-3	14-0	13-6	13-9	13-6	13-6
	24.0	12-9	12-6	10-11	8-5	13-3	13-0	12-6	12-9	12-6	12-2
2 x 8	12.0	21-2	20-10	19-11	15-3	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-11	17-3	13-2	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-7	15-9	12-0	18-9	18-5	17-9	18-2	17-9	17-9
	24.0	16-10	15-9	14-1	10-9	17-5	17-2	16-6	16-10	16-6	16-0
2 x 10	12.0	26-0*	26-0*	23-9	18-0	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	22-11	20-7	15-7	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	20-11	18-10	14-3	23-11	23-7	22-8	23-2	22-8	22-8
	24.0	21-6	18-9	16-10	12-9	22-3	21-10	21-1	21-6	21-1	20-5
2 x 12	12.0	26-0*	26-0*	26-0*	21-5	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	24-2	18-6	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	26-0*	22-0	16-11	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	22-4	19-9	15-2	26-0*	26-0*	25-7	26-0*	25-7	24-10

TABLE 24 RAFTERS – 30 PSF LIVE LOAD, 15 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	14-1	13-9	13-6	10-7	14-7	14-4	13-9	14-1	13-9	13-9
	16.0	12-9	12-6	11-9	9-2	13-3	13-0	12-6	12-9	12-6	12-6
	19.2	12-0	11-9	10-9	8-4	12-5	12-3	11-9	12-0	11-9	11-9
	24.0	11-2	10-11	9-7	7-5	11-7	11-4	10-11	11-2	10-11	10-9
2 x 8	12.0	18-6	18-2	17-7	13-5	19-2	18-10	18-2	18-6	18-2	18-2
	16.0	16-10	16-6	15-3	11-8	17-5	17-2	16-6	16-10	16-6	16-6
	19.2	15-10	15-6	13-11	10-7	16-5	16-1	15-6	15-10	15-6	15-6
	24.0	14-8	13-11	12-5	9-6	15-3	15-0	14-5	14-8	14-5	14-2
2 x 10	12.0	23-8	23-2	21-0	15-10	24-6	24-1	23-2	23-8	23-2	23-2
	16.0	21-6	20-3	18-2	13-9	22-3	21-10	21-1	21-6	21-1	21-1
	19.2	20-2	18-5	16-7	12-6	20-11	20-7	19-10	20-2	19-10	19-10
	24.0	18-9	16-6	14-10	11-3	19-5	19-1	18-5	18-9	18-5	18-0
2 x 12	12.0	26-0*	26-0*	24-7	18-11	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	24-1	21-3	16-4	26-0*	26-0*	25-7	26-0*	25-7	25-7
	19.2	24-7	22-0	19-5	14-11	25-5	25-0	24-1	24-7	24-1	24-1
	24.0	22-10	19-8	17-5	13-4	23-7	23-3	22-5	22-10	22-5	21-11

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

Table 25 Rafters – 40 psf live load, 15 psf dead load, 240 deflection, C_D = 1.15

Medium Roofing; Drywall Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	12-9	12-6	12-3	9-6	13-3	13-0	12-6	12-9	12-6	12-6
	16.0	11-7	11-5	10-8	8-3	12-0	11-10	11-5	11-7	11-5	11-5
	19.2	10-11	10-8	9-9	7-6	11-4	11-1	10-8	10-11	10-8	10-8
	24.0	10-2	9-11	8-8	6-9	10-6	10-4	9-11	10-2	9-11	9-8
2 x 8	12.0	16-10	16-6	15-11	12-2	17-5	17-2	16-6	16-10	16-6	16-6
	16.0	15-3	15-0	13-9	10-6	15-10	15-7	15-0	15-3	15-0	15-0
	19.2	14-5	14-1	12-7	9-7	14-11	14-8	14-1	14-5	14-1	14-1
	24.0	13-4	12-7	11-3	8-7	13-10	13-7	13-1	13-4	13-1	12-9
2 x 10	12.0	21-6	21-1	19-0	14-4	22-3	21-10	21-1	21-6	21-1	21-1
	16.0	19-6	18-3	16-5	12-5	20-2	19-10	19-2	19-6	19-2	19-2
	19.2	18-4	16-8	15-0	11-4	19-0	18-8	18-0	18-4	18-0	18-0
	24.0	17-0	14-11	13-5	10-2	17-8	17-4	16-9	17-0	16-9	16-4
2 x 12	12.0	26-0*	25-2	22-3	17-1	26-0*	26-0*	25-7	26-0*	25-7	25-7
	16.0	23-9	21-10	19-3	14-9	24-7	24-2	23-3	23-9	23-3	23-3
	19.2	22-4	19-11	17-7	13-6	23-1	22-9	21-11	22-4	21-11	21-11
	24.0	20-9	17-10	15-9	12-1	21-6	21-1	20-4	20-9	20-4	19-10

Table 26 Rafters – 50 psf live load, 15 psf dead load, 240 deflection, C_D = 1.15

Medium Roofing; Drywall Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	11-10	11-8	11-4	8-9	12-3	12-1	11-8	11-10	11-8	11-8
	16.0	10-9	10-7	9-10	7-7	11-2	11-0	10-7	10-9	10-7	10-7
	19.2	10-2	9-11	8-11	6-11	10-6	10-4	9-11	10-2	9-11	9-11
	24.0	9-5	9-2	8-0	6-2	9-9	9-7	9-3	9-5	9-3	8-11
2 x 8	12.0	15-7	15-4	14-7	11-2	16-2	15-11	15-4	15-7	15-4	15-4
	16.0	14-2	13-11	12-8	9-8	14-8	14-5	13-11	14-2	13-11	13-11
	19.2	13-4	12-11	11-7	8-10	13-10	13-7	13-1	13-4	13-1	13-1
	24.0	12-5	11-7	10-4	7-11	12-10	12-7	12-2	12-5	12-2	11-9
2 x 10	12.0	19-11	19-5	17-5	13-2	20-8	20-3	19-7	19-11	19-7	19-7
	16.0	18-1	16-10	15-1	11-5	18-9	18-5	17-9	18-1	17-9	17-9
	19.2	17-0	15-4	13-10	10-5	17-8	17-4	16-9	17-0	16-9	16-9
	24.0	15-10	13-9	12-4	9-4	16-5	16-1	15-6	15-10	15-6	15-0
2 x 12	12.0	24-3	23-2	20-5	15-9	25-1	24-8	23-9	24-3	23-9	23-9
	16.0	22-0	20-1	17-9	13-7	22-10	22-5	21-7	22-0	21-7	21-7
	19.2	20-9	18-4	16-2	12-5	21-6	21-1	20-4	20-9	20-4	20-4
	24.0	19-3	16-5	14-6	11-1	19-11	19-7	18-10	19-3	18-10	18-3

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 27 RAFTERS – 20 PSF LIVE LOAD, 20 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

HEAVY ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	16-1	15-9	14-5	11-2	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	12-6	9-8	15-2	14-11	14-4	14-7	14-4	13-11
	19.2	13-9	13-1	11-5	8-10	14-3	14-0	13-6	13-9	13-6	12-8
	24.0	12-9	11-9	10-2	7-11	13-3	13-0	12-6	12-9	12-3	11-4
2x8	12.0	21-2	20-10	18-8	14-3	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-1	16-2	12-4	19-11	19-7	18-11	19-3	18-11	18-4
	19.2	18-2	16-6	14-9	11-3	18-9	18-5	17-9	18-2	17-9	16-9
	24.0	16-10	14-9	13-2	10-1	17-5	17-2	16-6	16-10	16-2	15-0
2x10	12.0	26-0*	24-9	22-3	16-10	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	21-5	19-3	14-7	25-5	25-0	24-1	24-7	24-1	23-5
	19.2	23-2	19-7	17-7	13-4	23-11	23-7	22-8	23-2	22-8	21-4
	24.0	21-6	17-6	15-9	11-11	22-3	21-10	21-1	21-6	20-7	19-1
2x12	12.0	26-0*	26-0*	26-0*	20-0	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	25-7	22-7	17-4	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	23-4	20-7	15-10	26-0*	26-0*	26-0*	26-0*	26-0*	26-0
	24.0	25-9	20-11	18-5	14-2	26-0*	26-0*	25-7	26-0*	25-1	23-3

TABLE 28 RAFTERS – 30 PSF LIVE LOAD, 20 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

HEAVY ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	14-1	13-9	12-11	10-0	14-7	14-4	13-9	14-1	13-9	13-9
	16.0	12-9	12-6	11-2	8-8	13-3	13-0	12-6	12-9	12-6	12-5
	19.2	12-0	11-9	10-2	7-11	12-5	12-3	11-9	12-0	11-9	11-4
	24.0	11-2	10-6	9-2	7-1	11-7	11-4	10-11	11-2	10-11	10-2
2x8	12.0	18-6	18-2	16-8	12-9	19-2	18-10	18-2	18-6	18-2	18-2
	16.0	16-10	16-2	14-5	11-0	17-5	17-2	16-6	16-10	16-6	16-5
	19.2	15-10	14-9	13-2	10-1	16-5	16-1	15-6	15-10	15-6	15-0
	24.0	14-8	13-2	11-9	9-0	15-3	15-0	14-5	14-8	14-5	13-5
2x10	12.0	23-8	22-2	19-11	15-1	24-6	24-1	23-2	23-8	23-2	23-2
	16.0	21-6	19-2	17-3	13-0	22-3	21-10	21-1	21-6	21-1	20-11
	19.2	20-2	17-6	15-9	11-11	20-11	20-7	19-10	20-2	19-10	19-1
	24.0	18-9	15-8	14-1	10-8	19-5	19-1	18-5	18-9	18-5	17-1
2x12	12.0	26-0*	26-0*	23-4	17-11	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	22-10	20-2	15-6	26-0*	26-0*	25-7	26-0*	25-7	25-6
	19.2	24-7	20-11	18-5	14-2	25-5	25-0	24-1	24-7	24-1	23-3
	24.0	22-10	18-8	16-6	12-8	23-7	23-3	22-5	22-10	22-5	20-10

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 29 RAFTERS – 40 PSF LIVE LOAD, 20 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

HEAVY ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	12-9	12-6	11-9	9-2	13-3	13-0	12-6	12-9	12-6	12-6
	16.0	11-7	11-5	10-2	7-11	12-0	11-10	11-5	11-7	11-5	11-4
	19.2	10-11	10-8	9-4	7-3	11-4	11-1	10-8	10-11	10-8	10-5
	24.0	10-2	9-7	8-4	6-5	10-6	10-4	9-11	10-2	9-11	9-3
2 x 8	12.0	16-10	16-6	15-3	11-8	17-5	17-2	16-6	16-10	16-6	16-6
	16.0	15-3	14-9	13-2	10-1	15-10	15-7	15-0	15-3	15-0	15-0
	19.2	14-5	13-5	12-0	9-2	14-11	14-8	14-1	14-5	14-1	13-8
	24.0	13-4	12-0	10-9	8-3	13-10	13-7	13-1	13-4	13-1	12-3
2 x 10	12.0	21-6	20-3	18-2	13-9	22-3	21-10	21-1	21-6	21-1	21-1
	16.0	19-6	17-6	15-9	11-11	20-2	19-10	19-2	19-6	19-2	19-1
	19.2	18-4	16-0	14-4	10-10	19-0	18-8	18-0	18-4	18-0	17-5
	24.0	17-0	14-4	12-10	9-9	17-8	17-4	16-9	17-0	16-9	15-7
2 x 12	12.0	26-0*	24-1	21-3	16-4	26-0*	26-0*	25-7	26-0*	25-7	25-7
	16.0	23-9	20-11	18-5	14-2	24-7	24-2	23-3	23-9	23-3	23-3
	19.2	22-4	19-1	16-10	12-11	23-1	22-9	21-11	22-4	21-11	21-3
	24.0	20-9	17-1	15-1	11-7	21-6	21-1	20-4	20-9	20-4	19-0

TABLE 30 RAFTERS – 50 PSF LIVE LOAD, 20 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.15

HEAVY ROOFING; DRYWALL CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 6	12.0	11-10	11-8	10-11	8-5	12-3	12-1	11-8	11-10	11-8	11-8
	16.0	10-9	10-7	9-5	7-4	11-2	11-0	10-7	10-9	10-7	10-6
	19.2	10-2	9-11	8-8	6-8	10-6	10-4	9-11	10-2	9-11	9-7
	24.0	9-5	8-10	7-9	6-0	9-9	9-7	9-3	9-5	9-3	8-7
2 x 8	12.0	15-7	15-4	14-1	10-9	16-2	15-11	15-4	15-7	15-4	15-4
	16.0	14-2	13-8	12-2	9-4	14-8	14-5	13-11	14-2	13-11	13-10
	19.2	13-4	12-5	11-2	8-6	13-10	13-7	13-1	13-4	13-1	12-8
	24.0	12-5	11-2	10-0	7-7	12-10	12-7	12-2	12-5	12-2	11-4
2 x 10	12.0	19-11	18-9	16-10	12-9	20-8	20-3	19-7	19-11	19-7	19-7
	16.0	18-1	16-2	14-7	11-0	18-9	18-5	17-9	18-1	17-9	17-8
	19.2	17-0	14-10	13-4	10-1	17-8	17-4	16-9	17-0	16-9	16-2
	24.0	15-10	13-3	11-11	9-0	16-5	16-1	15-6	15-10	15-6	14-5
2 x 12	12.0	24-3	22-4	19-9	15-2	25-1	24-8	23-9	24-3	23-9	23-9
	16.0	22-0	19-4	17-1	13-1	22-10	22-5	21-7	22-0	21-7	21-6
	19.2	20-9	17-8	15-7	12-0	21-6	21-1	20-4	20-9	20-4	19-8
	24.0	19-3	15-9	13-11	10-8	19-11	19-7	18-10	19-3	18-10	17-7

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 31 RAFTERS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

LIGHT ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	11-3	11-1	10-10	8-9	11-8	11-6	11-1	11-3	11-1	11-1
	16.0	10-3	10-0	9-10	7-7	10-7	10-5	10-0	10-3	10-0	10-0
	19.2	9-8	9-5	9-2	6-11	10-0	9-10	9-5	9-8	9-5	9-4
	24.0	8-11	8-9	8-3	6-2	9-3	9-1	8-9	8-11	8-9	8-4
2 x 6	12.0	17-8	17-4	16-8	12-11	18-4	18-0	17-4	17-8	17-4	17-4
	16.0	16-1	15-9	14-5	11-2	16-8	16-4	15-9	16-1	15-9	15-9
	19.2	15-2	14-10	13-2	10-2	15-8	15-5	14-10	15-2	14-10	14-8
	24.0	14-1	13-6	11-9	9-2	14-7	14-4	13-9	14-1	13-9	13-1
2 x 8	12.0	23-4	22-11	21-6	16-5	24-2	23-9	22-11	23-4	22-11	22-11
	16.0	21-2	20-10	18-8	14-3	21-11	21-7	20-10	21-2	20-10	20-10
	19.2	19-11	19-0	17-0	13-0	20-8	20-4	19-7	19-11	19-7	19-4
	24.0	18-6	17-0	15-3	11-8	19-2	18-10	18-2	18-6	18-2	17-4
2 x 10	12.0	26-0*	26-0*	25-8	19-5	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	24-9	22-3	16-10	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	25-5	22-7	20-4	15-4	26-0*	25-11	25-0	25-5	25-0	24-8
	24.0	23-8	20-3	18-2	13-9	24-6	24-1	23-2	23-8	23-2	22-1

TABLE 32 RAFTERS – 30 PSF LIVE LOAD, 10 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

LIGHT ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	9-10	9-8	9-6	7-7	10-2	10-0	9-8	9-10	9-8	9-8
	16.0	8-11	8-9	8-7	6-7	9-3	9-1	8-9	8-11	8-9	8-9
	19.2	8-5	8-3	7-11	6-0	8-9	8-7	8-3	8-5	8-3	8-1
	24.0	7-10	7-8	7-1	5-4	8-1	7-11	7-8	7-10	7-8	7-3
2 x 6	12.0	15-6	15-2	14-5	11-2	16-0	15-9	15-2	15-6	15-2	15-2
	16.0	14-1	13-9	12-6	9-8	14-7	14-4	13-9	14-1	13-9	13-9
	19.2	13-3	13-0	11-5	8-10	13-8	13-6	13-0	13-3	13-0	12-8
	24.0	12-3	11-9	10-2	7-11	12-9	12-6	12-0	12-3	12-0	11-4
2 x 8	12.0	20-5	20-0	18-8	14-3	21-1	20-9	20-0	20-5	20-0	20-0
	16.0	18-6	18-1	16-2	12-4	19-2	18-10	18-2	18-6	18-2	18-2
	19.2	17-5	16-6	14-9	11-3	18-1	17-9	17-1	17-5	17-1	16-9
	24.0	16-2	14-9	13-2	10-1	16-9	16-6	15-10	16-2	15-10	15-0
2 x 10	12.0	26-0	24-9	22-3	16-10	26-0*	26-0*	25-6	26-0	25-6	25-6
	16.0	23-8	21-5	19-3	14-7	24-6	24-1	23-2	23-8	23-2	23-2
	19.2	22-3	19-7	17-7	13-4	23-0	22-8	21-10	22-3	21-10	21-4
	24.0	20-8	17-6	15-9	11-11	21-5	21-0	20-3	20-8	20-3	19-1

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

Table 33 Rafters – 40 psf live load, 10 psf dead load, 180 deflection, C_D = 1.15

Light Roofing; No Finished Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-11	8-9	8-7	6-9	9-3	9-1	8-9	8-11	8-9	8-9
	16.0	8-1	8-0	7-10	5-10	8-5	8-3	8-0	8-1	8-0	7-11
	19.2	7-8	7-6	7-1	5-4	7-11	7-9	7-6	7-8	7-6	7-3
	24.0	7-1	7-0	6-4	4-9	7-4	7-3	7-0	7-1	7-0	6-6
2 x 6	12.0	14-1	13-9	12-11	10-0	14-7	14-4	13-9	14-1	13-9	13-9
	16.0	12-9	12-6	11-2	8-8	13-3	13-0	12-6	12-9	12-6	12-5
	19.2	12-0	11-9	10-2	7-11	12-5	12-3	11-9	12-0	11-9	11-4
	24.0	11-2	10-6	9-2	7-1	11-7	11-4	10-11	11-2	10-11	10-2
2 x 8	12.0	18-6	18-2	16-8	12-9	19-2	18-10	18-2	18-6	18-2	18-2
	16.0	16-10	16-2	14-5	11-0	17-5	17-2	16-6	16-10	16-6	16-5
	19.2	15-10	14-9	13-2	10-1	16-5	16-1	15-6	15-10	15-6	15-0
	24.0	14-8	13-2	11-9	9-0	15-3	15-0	14-5	14-8	14-5	13-5
2 x 10	12.0	23-8	22-2	19-11	15-1	24-6	24-1	23-2	23-8	23-2	23-2
	16.0	21-6	19-2	17-3	13-0	22-3	21-10	21-1	21-6	21-1	20-11
	19.2	20-2	17-6	15-9	11-11	20-11	20-7	19-10	20-2	19-10	19-1
	24.0	18-9	15-8	14-1	10-8	19-5	19-1	18-5	18-9	18-5	17-1

Table 34 Rafters – 50 psf live load, 10 psf dead load, 180 deflection, C_D = 1.15

Light Roofing; No Finished Ceiling; Snow Load

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-4	8-2	8-0	6-2	8-7	8-5	8-2	8-4	8-2	8-2
	16.0	7-6	7-5	7-1	5-4	7-10	7-8	7-5	7-6	7-5	7-3
	19.2	7-1	7-0	6-6	4-11	7-4	7-3	7-0	7-1	7-0	6-7
	24.0	6-7	6-5	5-10	4-4	6-10	6-8	6-6	6-7	6-4	5-11
2 x 6	12.0	13-1	12-10	11-9	9-2	13-6	13-3	12-10	13-1	12-10	12-10
	16.0	11-10	11-8	10-2	7-11	12-3	12-1	11-8	11-10	11-8	11-4
	19.2	11-2	10-8	9-4	7-3	11-7	11-4	10-11	11-2	10-11	10-5
	24.0	10-4	9-7	8-4	6-5	10-9	10-6	10-2	10-4	10-0	9-3
2 x 8	12.0	17-2	16-10	15-3	11-8	17-10	17-6	16-10	17-2	16-10	16-10
	16.0	15-7	14-9	13-2	10-1	16-2	15-11	15-4	15-7	15-4	15-0
	19.2	14-8	13-5	12-0	9-2	15-3	15-0	14-5	14-8	14-5	13-8
	24.0	13-8	12-0	10-9	8-3	14-2	13-11	13-5	13-8	13-2	12-3
2 x 10	12.0	21-11	20-3	18-2	13-9	22-9	22-4	21-6	21-11	21-6	21-6
	16.0	19-11	17-6	15-9	11-11	20-8	20-3	19-7	19-11	19-7	19-1
	19.2	18-9	16-0	14-4	10-10	19-5	19-1	18-5	18-9	18-5	17-5
	24.0	17-5	14-4	12-10	9-9	18-0	17-9	17-1	17-5	16-10	15-7

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 35 RAFTERS – 20 PSF LIVE LOAD, 15 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	11-3	11-1	10-9	8-1	11-8	11-6	11-1	11-3	11-1	10-11
	16.0	10-3	10-0	9-4	7-0	10-7	10-5	10-0	10-3	10-0	9-6
	19.2	9-8	9-5	8-6	6-5	10-0	9-10	9-5	9-8	9-4	8-8
	24.0	8-11	8-5	7-7	5-9	9-3	9-1	8-8	8-11	8-4	7-9
2 x 6	12.0	17-8	17-4	15-5	11-11	18-4	18-0	17-4	17-8	17-4	17-2
	16.0	16-1	15-4	13-4	10-4	16-8	16-4	15-9	16-1	15-9	14-11
	19.2	15-2	14-0	12-2	9-5	15-8	15-5	14-10	15-2	14-8	13-7
	24.0	14-1	12-6	10-11	8-5	14-7	14-4	13-8	14-1	13-1	12-2
2 x 8	12.0	23-4	22-3	19-11	15-3	24-2	23-9	22-11	23-4	22-11	22-8
	16.0	21-2	19-4	17-3	13-2	21-11	21-7	20-10	21-2	20-10	19-7
	19.2	19-11	17-7	15-9	12-0	20-8	20-4	19-7	19-11	19-4	17-11
	24.0	18-6	15-9	14-1	10-9	19-2	18-10	18-0	18-6	17-3	16-0
2 x 10	12.0	26-0*	26-0*	23-9	18-0	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	22-11	20-7	15-7	26-0*	26-0*	26-0*	26-0*	26-0*	25-0
	19.2	25-5	20-11	18-10	14-3	26-0*	25-11	25-0	25-5	24-7	22-10
	24.0	23-6	18-9	16-10	12-9	24-6	24-1	22-11	23-8	22-0	20-5

TABLE 36 RAFTERS – 30 PSF LIVE LOAD, 15 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	9-10	9-8	9-6	7-2	10-2	10-0	9-8	9-10	9-8	9-8
	16.0	8-11	8-9	8-3	6-2	9-3	9-1	8-9	8-11	8-9	8-4
	19.2	8-5	8-3	7-6	5-8	8-9	8-7	8-3	8-5	8-3	7-7
	24.0	7-10	7-5	6-9	5-1	8-1	7-11	7-8	7-10	7-4	6-10
2 x 6	12.0	15-6	15-2	13-7	10-7	16-0	15-9	15-2	15-6	15-2	15-2
	16.0	14-1	13-6	11-9	9-2	14-7	14-4	13-9	14-1	13-9	13-1
	19.2	13-3	12-4	10-9	8-4	13-8	13-6	13-0	13-3	12-11	12-0
	24.0	12-3	11-1	9-7	7-5	12-9	12-6	12-0	12-3	11-7	10-9
2 x 8	12.0	20-5	19-8	17-7	13-5	21-1	20-9	20-0	20-5	20-0	20-0
	16.0	18-6	17-0	15-3	11-8	19-2	18-10	18-2	18-6	18-2	17-4
	19.2	17-5	15-6	13-11	10-7	18-1	17-9	17-1	17-5	17-0	15-10
	24.0	16-2	13-11	12-5	9-6	16-9	16-6	15-10	16-2	15-3	14-2
2 x 10	12.0	26-0	23-4	21-0	15-10	26-0*	26-0*	25-6	26-0	25-6	25-6
	16.0	23-8	20-3	18-2	13-9	24-6	24-1	23-2	23-8	23-2	22-1
	19.2	22-3	18-5	16-7	12-6	23-0	22-8	21-10	22-3	21-9	20-2
	24.0	20-8	16-6	14-10	11-3	21-5	21-0	20-3	20-8	19-5	18-0

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 37 RAFTERS – 40 PSF LIVE LOAD, 15 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-11	8-9	8-7	6-6	9-3	9-1	8-9	8-11	8-9	8-9
	16.0	8-1	8-0	7-5	5-7	8-5	8-3	8-0	8-1	8-0	7-7
	19.2	7-8	7-6	6-9	5-1	7-11	7-9	7-6	7-8	7-5	6-11
	24.0	7-1	6-9	6-1	4-7	7-4	7-3	6-11	7-1	6-8	6-2
2 x 6	12.0	14-1	13-9	12-4	9-6	14-7	14-4	13-9	14-1	13-9	13-8
	16.0	12-9	12-3	10-8	8-3	13-3	13-0	12-6	12-9	12-6	11-10
	19.2	12-0	11-2	9-9	7-6	12-5	12-3	11-9	12-0	11-8	10-10
	24.0	11-2	10-0	8-8	6-9	11-7	11-4	10-10	11-2	10-5	9-8
2 x 8	12.0	18-6	17-9	15-11	12-2	19-2	18-10	18-2	18-6	18-2	18-1
	16.0	16-10	15-5	13-9	10-6	17-5	17-2	16-6	16-10	16-6	15-8
	19.2	15-10	14-1	12-7	9-7	16-5	16-1	15-6	15-10	15-5	14-3
	24.0	14-8	12-7	11-3	8-7	15-3	15-0	14-4	14-8	13-9	12-9
2 x 10	12.0	23-8	21-1	19-0	14-4	24-6	24-1	23-2	23-8	23-2	23-1
	16.0	21-6	18-3	16-5	12-5	22-3	21-10	21-1	21-6	21-1	20-0
	19.2	20-2	16-8	15-0	11-4	20-11	20-7	19-10	20-2	19-8	18-3
	24.0	18-9	14-11	13-5	10-2	19-5	19-1	18-3	18-9	17-7	16-4

TABLE 38 RAFTERS – 50 PSF LIVE LOAD, 15 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

MEDIUM ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-4	8-2	7-11	5-11	8-7	8-5	8-2	8-4	8-2	8-0
	16.0	7-6	7-5	6-10	5-2	7-10	7-8	7-5	7-6	7-5	6-11
	19.2	7-1	6-11	6-3	4-8	7-4	7-3	7-0	7-1	6-10	6-4
	24.0	6-7	6-2	5-7	4-2	6-10	6-8	6-4	6-7	6-1	5-8
2 x 6	12.0	13-1	12-10	11-4	8-9	13-6	13-3	12-10	13-1	12-10	12-7
	16.0	11-10	11-3	9-10	7-7	12-3	12-1	11-8	11-10	11-8	10-11
	19.2	11-2	10-3	8-11	6-11	11-7	11-4	10-11	11-2	10-9	10-0
	24.0	10-4	9-2	8-0	6-2	10-9	10-6	10-0	10-4	9-7	8-11
2 x 8	12.0	17-2	16-4	14-7	11-2	17-10	17-6	16-10	17-2	16-10	16-7
	16.0	15-7	14-2	12-8	9-8	16-2	15-11	15-4	15-7	15-4	14-5
	19.2	14-8	12-11	11-7	8-10	15-3	15-0	14-5	14-8	14-2	13-2
	24.0	13-8	11-7	10-4	7-11	14-2	13-11	13-2	13-8	12-8	11-9
2 x 10	12.0	21-11	19-5	17-5	13-2	22-9	22-4	21-6	21-11	21-6	21-2
	16.0	19-11	16-10	15-1	11-5	20-8	20-3	19-7	19-11	19-7	18-4
	19.2	18-9	15-4	13-10	10-5	19-5	19-1	18-5	18-9	18-1	16-9
	24.0	17-3	13-9	12-4	9-4	18-0	17-9	16-10	17-5	16-2	15-0

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 39 RAFTERS – 20 PSF LIVE LOAD, 20 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

HEAVY ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	11-3	11-1	10-1	7-7	11-8	11-6	11-1	11-3	11-0	10-3
	16.0	10-3	9-8	8-9	6-7	10-7	10-5	9-11	10-3	9-7	8-10
	19.2	9-8	8-10	7-11	6-0	10-0	9-9	9-1	9-8	8-9	8-1
	24.0	8-11	7-11	7-1	5-4	9-0	8-9	8-1	8-11	7-10	7-3
2 x 6	12.0	17-8	16-7	14-5	11-2	18-4	18-0	17-4	17-8	17-4	16-1
	16.0	16-1	14-4	12-6	9-8	16-8	16-4	15-7	16-1	15-0	13-11
	19.2	15-2	13-1	11-5	8-10	15-8	15-4	14-3	15-2	13-8	12-8
	24.0	14-1	11-9	10-2	7-11	14-2	13-8	12-9	14-1	12-3	11-4
2 x 8	12.0	23-4	20-10	18-8	14-3	24-2	23-9	22-11	23-4	22-10	21-2
	16.0	21-2	18-1	16-2	12-4	21-11	21-7	20-7	21-2	19-9	18-4
	19.2	19-11	16-6	14-9	11-3	20-8	20-2	18-9	19-11	18-1	16-9
	24.0	18-3	14-9	13-2	10-1	18-8	18-1	16-10	18-6	16-2	15-0
2 x 10	12.0	26-0*	24-9	22-3	16-10	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	21-5	19-3	14-7	26-0*	26-0*	26-0*	26-0*	25-3	23-5
	19.2	24-7	19-7	17-7	13-4	26-0*	25-9	24-0	25-5	23-0	21-4
	24.0	22-0	17-6	15-9	11-11	23-9	23-0	21-5	23-8	20-7	19-1

TABLE 40 RAFTERS – 30 PSF LIVE LOAD, 20 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

HEAVY ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	9-10	9-8	9-0	6-9	10-2	10-0	9-8	9-10	9-8	9-2
	16.0	8-11	8-8	7-10	5-10	9-3	9-1	8-9	8-11	8-6	7-11
	19.2	8-5	7-11	7-1	5-4	8-9	8-7	8-1	8-5	7-10	7-3
	24.0	7-10	7-1	6-4	4-9	8-1	7-10	7-3	7-10	7-0	6-6
2 x 6	12.0	15-6	14-10	12-11	10-0	16-0	15-9	15-2	15-6	15-2	14-5
	16.0	14-1	12-10	11-2	8-8	14-7	14-4	13-9	14-1	13-5	12-5
	19.2	13-3	11-9	10-2	7-11	13-8	13-6	12-9	13-3	12-3	11-4
	24.0	12-3	10-6	9-2	7-1	12-8	12-3	11-5	12-3	10-11	10-2
2 x 8	12.0	20-5	18-8	16-8	12-9	21-1	20-9	20-0	20-5	20-0	18-11
	16.0	18-6	16-2	14-5	11-0	19-2	18-10	18-2	18-6	17-8	16-5
	19.2	17-5	14-9	13-2	10-1	18-1	17-9	16-10	17-5	16-2	15-0
	24.0	16-2	13-2	11-9	9-0	16-8	16-2	15-0	16-2	14-5	13-5
2 x 10	12.0	26-0	22-2	19-11	15-1	26-0*	26-0*	25-6	26-0	25-6	24-2
	16.0	23-8	19-2	17-3	13-0	24-6	24-1	23-2	23-8	22-7	20-11
	19.2	22-0	17-6	15-9	11-11	23-0	22-8	21-5	22-3	20-7	19-1
	24.0	19-8	15-8	14-1	10-8	21-3	20-7	19-2	20-8	18-5	17-1

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 41 RAFTERS – 40 PSF LIVE LOAD, 20 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

HEAVY ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-11	8-9	8-3	6-2	9-3	9-1	8-9	8-11	8-9	8-4
	16.0	8-1	7-11	7-1	5-4	8-5	8-3	8-0	8-1	7-10	7-3
	19.2	7-8	7-3	6-6	4-11	7-11	7-9	7-5	7-8	7-1	6-7
	24.0	7-1	6-5	5-10	4-4	7-4	7-1	6-7	7-1	6-4	5-11
2 x 6	12.0	14-1	13-6	11-9	9-2	14-7	14-4	13-9	14-1	13-9	13-1
	16.0	12-9	11-9	10-2	7-11	13-3	13-0	12-6	12-9	12-3	11-4
	19.2	12-0	10-8	9-4	7-3	12-5	12-3	11-8	12-0	11-2	10-5
	24.0	11-2	9-7	8-4	6-5	11-7	11-2	10-5	11-2	10-0	9-3
2 x 8	12.0	18-6	17-0	15-3	11-8	19-2	18-10	18-2	18-6	18-2	17-4
	16.0	16-10	14-9	13-2	10-1	17-5	17-2	16-6	16-10	16-2	15-0
	19.2	15-10	13-5	12-0	9-2	16-5	16-1	15-4	15-10	14-9	13-8
	24.0	14-8	12-0	10-9	8-3	15-3	14-9	13-9	14-8	13-2	12-3
2 x 10	12.0	23-8	20-3	18-2	13-9	24-6	24-1	23-2	23-8	23-2	22-1
	16.0	21-6	17-6	15-9	11-11	22-3	21-10	21-1	21-6	20-7	19-1
	19.2	20-1	16-0	14-4	10-10	20-11	20-7	19-7	20-2	18-10	17-5
	24.0	17-11	14-4	12-10	9-9	19-5	18-10	17-6	18-9	16-10	15-7

TABLE 42 RAFTERS – 50 PSF LIVE LOAD, 20 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.15

HEAVY ROOFING; NO FINISHED CEILING; SNOW LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2 x 4	12.0	8-4	8-2	7-7	5-9	8-7	8-5	8-2	8-4	8-2	7-9
	16.0	7-6	7-4	6-7	5-0	7-10	7-8	7-5	7-6	7-3	6-8
	19.2	7-1	6-8	6-0	4-6	7-4	7-3	6-10	7-1	6-7	6-1
	24.0	6-7	6-0	5-5	4-1	6-10	6-7	6-2	6-7	5-11	5-6
2 x 6	12.0	13-1	12-6	10-11	8-5	13-6	13-3	12-10	13-1	12-10	12-2
	16.0	11-10	10-10	9-5	7-4	12-3	12-1	11-8	11-10	11-4	10-6
	19.2	11-2	9-11	8-8	6-8	11-7	11-4	10-9	11-2	10-4	9-7
	24.0	10-4	8-10	7-9	6-0	10-8	10-4	9-8	10-4	9-3	8-7
2 x 8	12.0	17-2	15-9	14-1	10-9	17-10	17-6	16-10	17-2	16-10	16-0
	16.0	15-7	13-8	12-2	9-4	16-2	15-11	15-4	15-7	14-11	13-10
	19.2	14-8	12-5	11-2	8-6	15-3	15-0	14-2	14-8	13-8	12-8
	24.0	13-8	11-2	10-0	7-7	14-1	13-8	12-8	13-8	12-2	11-4
2 x 10	12.0	21-11	18-9	16-10	12-9	22-9	22-4	21-6	21-11	21-6	20-5
	16.0	19-11	16-2	14-7	11-0	20-8	20-3	19-7	19-11	19-1	17-8
	19.2	18-7	14-10	13-4	10-1	19-5	19-1	18-1	18-9	17-5	16-2
	24.0	16-7	13-3	11-11	9-0	18-0	17-5	16-2	17-5	15-7	14-5

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 43 RAFTERS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.25

LIGHT ROOFING; DRYWALL CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	16-1	15-9	15-6	13-6	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	14-1	11-8	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	13-3	10-8	14-3	14-0	13-6	13-9	13-6	13-6
	24.0	12-9	12-6	12-3	9-6	13-3	13-0	12-6	12-9	12-6	12-6
2x8	12.0	21-2	20-10	20-5	17-2	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-11	18-6	14-10	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-9	17-5	13-7	18-9	18-5	17-9	18-2	17-9	17-9
	24.0	16-10	16-6	15-10	12-1	17-5	17-2	16-6	16-10	16-6	16-6
2x10	12.0	26-0*	26-0*	26-0	20-3	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	24-1	23-2	17-6	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	22-8	21-2	16-0	23-11	23-7	22-8	23-2	22-8	22-8
	24.0	21-6	21-1	18-11	14-4	22-3	21-10	21-1	21-6	21-1	21-1
2x12	12.0	26-0*	26-0*	26-0*	24-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	26-0*	20-11	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	26-0*	24-10	19-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	25-2	22-2	17-1	26-0*	26-0*	25-7	26-0*	25-7	25-7

TABLE 44 RAFTERS – 20 PSF LIVE LOAD, 15 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.25

MEDIUM ROOFING; DRYWALL CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	16-1	15-9	15-6	12-6	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	13-11	10-10	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	12-9	9-10	14-3	14-0	13-6	13-9	13-6	13-6
	24.0	12-9	12-6	11-5	8-10	13-3	13-0	12-6	12-9	12-6	12-6
2x8	12.0	21-2	20-10	20-5	15-10	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-11	18-0	13-9	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-9	16-5	12-7	18-9	18-5	17-9	18-2	17-9	17-9
	24.0	16-10	16-5	14-8	11-3	17-5	17-2	16-6	16-10	16-6	16-6
2x10	12.0	26-0*	26-0*	24-10	18-9	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	23-11	21-6	16-3	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	21-10	19-7	14-10	23-11	23-7	22-8	23-2	22-8	22-8
	24.0	21-6	19-6	17-6	13-3	22-3	21-10	21-1	21-6	21-1	21-1
2x12	12.0	26-0*	26-0*	26-0*	22-4	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	25-2	19-4	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	26-0	23-0	17-8	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	23-3	20-7	15-9	26-0*	26-0*	25-7	26-0*	25-7	25-7

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 45 RAFTERS – 20 PSF LIVE LOAD, 20 PSF DEAD LOAD, 240 DEFLECTION, C_D = 1.25

HEAVY ROOFING; DRYWALL CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x6	12.0	16-1	15-9	15-1	11-8	16-8	16-4	15-9	16-1	15-9	15-9
	16.0	14-7	14-4	13-0	10-1	15-2	14-11	14-4	14-7	14-4	14-4
	19.2	13-9	13-6	11-11	9-3	14-3	14-0	13-6	13-9	13-6	13-3
	24.0	12-9	12-3	10-8	8-3	13-3	13-0	12-6	12-9	12-6	11-10
2x8	12.0	21-2	20-10	19-5	14-10	21-11	21-7	20-10	21-2	20-10	20-10
	16.0	19-3	18-10	16-10	12-10	19-11	19-7	18-11	19-3	18-11	18-11
	19.2	18-2	17-2	15-4	11-9	18-9	18-5	17-9	18-2	17-9	17-6
	24.0	16-10	15-4	13-9	10-6	17-5	17-2	16-6	16-10	16-6	15-7
2x10	12.0	26-0*	25-10	23-2	17-6	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	24-7	22-4	20-1	15-2	25-5	25-0	24-1	24-7	24-1	24-1
	19.2	23-2	20-5	18-4	13-10	23-11	23-7	22-8	23-2	22-8	22-3
	24.0	21-6	18-3	16-5	12-5	22-3	21-10	21-1	21-6	21-1	19-11
2x12	12.0	26-0*	26-0*	26-0*	20-11	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	26-0*	23-7	18-1	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	26-0*	24-4	21-6	16-6	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	24.0	26-0*	21-9	19-3	14-9	26-0*	26-0*	25-7	26-0*	25-7	24-3

TABLE 46 RAFTERS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.25

LIGHT ROOFING; NO FINISHED CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x4	12.0	11-3	11-1	10-10	9-1	11-8	11-6	11-1	11-3	11-1	11-1
	16.0	10-3	10-0	9-10	7-11	10-7	10-5	10-0	10-3	10-0	10-0
	19.2	9-8	9-5	9-3	7-3	10-0	9-10	9-5	9-8	9-5	9-5
	24.0	8-11	8-9	8-7	6-5	9-3	9-1	8-9	8-11	8-9	8-8
2x6	12.0	17-8	17-4	17-0	13-6	18-4	18-0	17-4	17-8	17-4	17-4
	16.0	16-1	15-9	15-1	11-8	16-8	16-4	15-9	16-1	15-9	15-9
	19.2	15-2	14-10	13-9	10-8	15-8	15-5	14-10	15-2	14-10	14-10
	24.0	14-1	13-9	12-3	9-6	14-7	14-4	13-9	14-1	13-9	13-8
2x8	12.0	23-4	22-11	22-5	17-2	24-2	23-9	22-11	23-4	22-11	22-11
	16.0	21-2	20-10	19-5	14-10	21-11	21-7	20-10	21-2	20-10	20-10
	19.2	19-11	19-7	17-9	13-7	20-8	20-4	19-7	19-11	19-7	19-7
	24.0	18-6	17-9	15-10	12-1	19-2	18-10	18-2	18-6	18-2	18-0
2x10	12.0	26-0*	26-0*	26-0*	20-3	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	25-10	23-2	17-6	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	25-5	23-7	21-2	16-0	26-0*	25-11	25-0	25-5	25-0	25-0
	24.0	23-8	21-1	18-11	14-4	24-6	24-1	23-2	23-8	23-2	23-0

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

TABLE 47 RAFTERS – 20 PSF LIVE LOAD, 15 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.25

MEDIUM ROOFING; NO FINISHED CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x4	12.0	11-3	11-1	10-10	8-5	11-8	11-6	11-1	11-3	11-1	11-1
	16.0	10-3	10-0	9-9	7-4	10-7	10-5	10-0	10-3	10-0	9-10
	19.2	9-8	9-5	8-10	6-8	10-0	9-10	9-5	9-8	9-5	9-0
	24.0	8-11	8-9	7-11	6-0	9-3	9-1	8-9	8-11	8-8	8-1
2x6	12.0	17-8	17-4	16-1	12-6	18-4	18-0	17-4	17-8	17-4	17-4
	16.0	16-1	15-9	13-11	10-10	16-8	16-4	15-9	16-1	15-9	15-6
	19.2	15-2	14-7	12-9	9-10	15-8	15-5	14-10	15-2	14-10	14-2
	24.0	14-1	13-1	11-5	8-10	14-7	14-4	13-9	14-1	13-8	12-8
2x8	12.0	23-4	22-11	20-9	15-10	24-2	23-9	22-11	23-4	22-11	22-11
	16.0	21-2	20-1	18-0	13-9	21-11	21-7	20-10	21-2	20-10	20-5
	19.2	19-11	18-4	16-5	12-7	20-8	20-4	19-7	19-11	19-7	18-8
	24.0	18-6	16-5	14-8	11-3	19-2	18-10	18-2	18-6	18-0	16-8
2x10	12.0	26-0*	26-0*	24-10	18-9	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	23-11	21-6	16-3	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	19.2	25-5	21-10	19-7	14-10	26-0*	25-11	25-0	25-5	25-0	23-10
	24.0	23-8	19-6	17-6	13-3	24-6	24-1	23-2	23-8	23-0	21-4

TABLE 48 RAFTERS – 20 PSF LIVE LOAD, 20 PSF DEAD LOAD, 180 DEFLECTION, C_D = 1.25

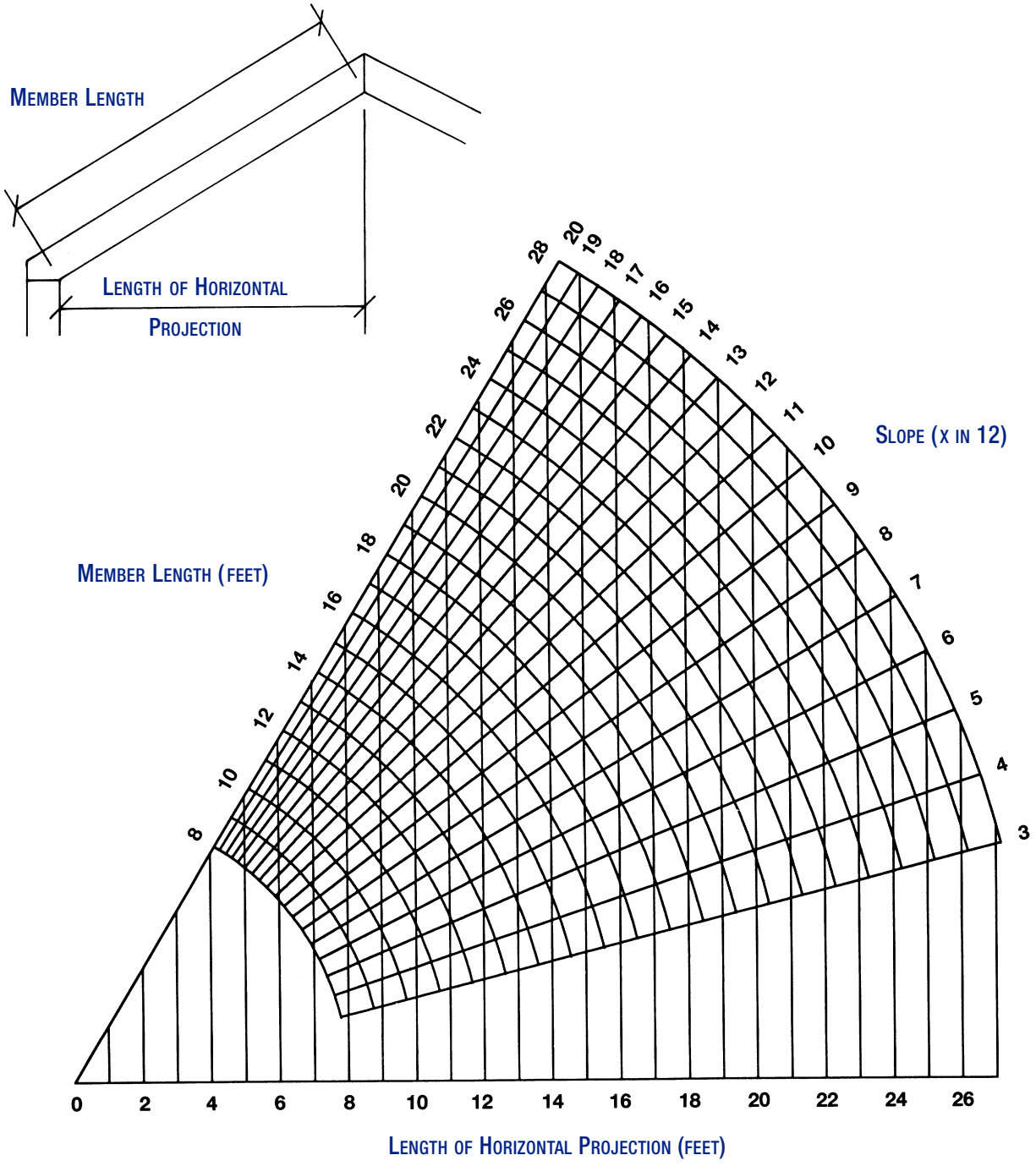
HEAVY ROOFING; NO FINISHED CEILING; CONSTRUCTION LOAD

Size (inches)	Spacing (inches on center)	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		SS	No.1	No.2	No.3	2400f - 2.0E	2250f - 1.9E	1950f - 1.7E	M23	M14	M29
2x4	12.0	11-3	11-1	10-6	7-11	11-8	11-6	11-1	11-3	11-1	10-8
	16.0	10-3	10-0	9-1	6-10	10-7	10-5	10-0	10-3	9-11	9-3
	19.2	9-8	9-3	8-4	6-3	10-0	9-10	9-5	9-8	9-1	8-5
	24.0	8-11	8-3	7-5	5-7	9-3	9-1	8-5	8-11	8-2	7-6
2x6	12.0	17-8	17-3	15-1	11-8	18-4	18-0	17-4	17-8	17-4	16-9
	16.0	16-1	15-0	13-0	10-1	16-8	16-4	15-9	16-1	15-8	14-6
	19.2	15-2	13-8	11-11	9-3	15-8	15-5	14-10	15-2	14-3	13-3
	24.0	14-1	12-3	10-8	8-3	14-7	14-3	13-3	14-1	12-9	11-10
2x8	12.0	23-4	21-9	19-5	14-10	24-2	23-9	22-11	23-4	22-11	22-1
	16.0	21-2	18-10	16-10	12-10	21-11	21-7	20-10	21-2	20-7	19-2
	19.2	19-11	17-2	15-4	11-9	20-8	20-4	19-7	19-11	18-10	17-6
	24.0	18-6	15-4	13-9	10-6	19-2	18-10	17-6	18-6	16-10	15-7
2x10	12.0	26-0*	25-10	23-2	17-6	26-0*	26-0*	26-0*	26-0*	26-0*	26-0*
	16.0	26-0*	22-4	20-1	15-2	26-0*	26-0*	26-0*	26-0*	26-0*	24-5
	19.2	25-5	20-5	18-4	13-10	26-0*	25-11	25-0	25-5	24-0	22-3
	24.0	22-11	18-3	16-5	12-5	24-6	24-0	22-4	23-8	21-6	19-11

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 or 1.25. An asterisk (*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

Conversion Diagram for Rafters

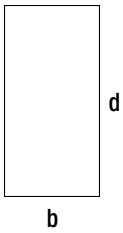
Courtesy of the American Forest & Paper Association

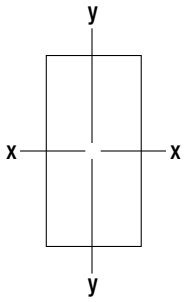

Member Length
Length of Horizontal Projection
Slope (x in 12)
Member Length (feet)
Length of Horizontal Projection (feet)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
8 10 12 14 16 18 20 22 24 26 28
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3

To use the diagram, select the known horizontal distance and follow the vertical line to its intersection with the radial line of the specified slope. Then proceed along the arc to read the sloping distance. In some cases it may be desirable to interpolate between the one-foot separations. The diagram also may be used to find the horizontal distance corresponding to a given sloping distance, or to find the slope when the horizontal and sloping distances are known.

Example: With a roof slope of 8 in 12, and a horizontal distance of 20 feet, the sloping distance may be read as 24 feet.

PROPERTIES OF SECTIONS





Nominal Size (inches) b	d	Actual Size (inches) b	d	Area A (in^2)	AXIS XX Section Modulus S (in^3)	AXIS XX Moment of Inertia I (in^4)	AXIS YY Section Modulus S (in^3)	AXIS YY Moment of Inertia I (in^4)	Board Measure per Lineal Foot	Weight* per Lineal Foot (lbs.)
2	2	1 - 1/2	1 - 1/2	2.250	0.563	0.422	0.563	0.422	0.33	0.7
	3		2 - 1/2	3.750	1.563	1.953	0.938	0.703	0.50	1.1
	4		3 - 1/2	5.250	3.063	5.359	1.313	0.984	0.67	1.5
	5		4 - 1/2	6.750	5.063	11.391	1.688	1.266	0.83	1.8
	6		5 - 1/2	8.250	7.563	20.797	2.063	1.547	1.00	2.2
	8		7 - 1/4	10.875	13.141	47.635	2.719	2.039	1.33	2.9
	10		9 - 1/4	13.875	21.391	98.932	3.469	2.602	1.67	3.8
	12		11 - 1/4	16.875	31.641	177.979	4.219	3.164	2.00	4.6
	14		13 - 1/4	19.875	43.891	290.775	4.969	3.727	2.33	5.6
3	3	2 - 1/2	2 - 1/2	6.250	2.604	3.255	2.604	3.255	0.75	1.8
	4		3 - 1/2	8.750	5.104	8.932	3.646	4.557	1.00	2.3
	6		5 - 1/2	13.750	12.604	34.661	5.729	7.161	1.50	3.5
	8		7 - 1/4	18.125	21.901	79.391	7.552	9.440	2.00	4.6
	10		9 - 1/4	23.125	35.651	164.886	9.635	12.044	2.50	6.0
	12		11 - 1/4	28.125	52.734	296.631	11.719	14.648	3.00	7.2
	14		13 - 1/4	33.125	73.151	484.626	13.802	17.253	3.50	8.4
4	4	3 - 1/2	3 - 1/2	12.250	7.146	12.505	7.146	12.505	1.33	3.2
	6		5 - 1/2	19.250	17.646	48.526	11.229	19.651	2.00	5.0
	8		7 - 1/4	25.375	30.661	111.148	14.802	25.904	2.67	6.7
	10		9 - 1/4	32.375	49.911	230.840	18.885	33.049	3.33	8.3
	12		11 - 1/4	39.375	73.828	415.283	22.969	40.195	4.00	10.0
	14		13 - 1/4	46.375	102.411	678.476	27.052	47.341	4.67	11.7
6	6	5 - 1/2	5 - 1/2	30.250	27.729	76.255	27.729	76.255	3.00	11.4
	8		7 - 1/2	41.250	51.563	193.359	37.813	103.984	4.00	15.2
	10		9 - 1/2	52.250	82.729	392.964	47.896	131.714	5.00	19.0
	12		11 - 1/2	63.250	121.229	697.068	57.979	159.443	6.00	22.8
	14		13 - 1/2	74.250	167.063	1127.672	68.063	187.172	7.00	26.6
8	8	7 - 1/2	7 - 1/2	56.250	70.313	263.672	70.313	263.672	5.33	20.3
	10		9 - 1/2	71.250	112.813	535.859	89.063	333.984	6.67	25.4
	12		11 - 1/2	86.250	165.313	950.547	107.813	404.297	8.00	30.4
	14		13 - 1/2	101.250	227.813	1537.734	126.563	474.609	9.33	35.5
10	10	9 - 1/2	9 - 1/2	90.250	142.896	678.755	142.896	678.755	8.33	31.7
	12		11 - 1/2	109.250	209.396	1204.026	172.979	821.651	10.00	38.0
	14		13 - 1/2	128.250	288.563	1947.797	203.063	964.547	11.67	44.4
12	12	11 - 1/2	11 - 1/2	132.250	253.479	1457.505	253.479	1457.505	12.00	45.6
	14		13 - 1/2	155.250	349.313	2357.859	297.563	1710.984	14.00	53.2
14	14	13 - 1/2	13 - 1/2	182.250	410.063	2767.922	410.063	2767.922	16.33	62.1

*NOTE: The weights listed are estimates to assist with dead-load calculations. Actual weights may be different due to variations in specific gravity and moisture content. As a result, these estimated weights should not be used to calculate shipping weights.

Additional Information

The Southern Pine Council offers a wide variety of other helpful publications. A single copy is free upon request. Materials available and the cost per copy for quantities include:

Southern Pine Use Guide *(#200, $2)*
24 pages, grade descriptions, design values, specification guidelines

Southern Pine Headers & Beams *(#207, $2)*
36 pages, size selection and allowable load tables for Southern Pine lumber and glued laminated timber

Pressure-Treated Southern Pine *(#300, $2)*
20 pages, retentions, standards, proper use and handling

Post-Frame Construction Guide *(#203, $1.50)*
28 pages, structural elements, connections, design considerations

Southern Pine Finger-Jointed Studs *(#212, $1.00)*
8 pages, product descriptions, applications, quality control

For a free listing of all publications and video programs, request the *SFPA Catalog*. Direct your inquiries to:

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On behalf of the Southern Pine Council, SFPA maintains a staff of marketing program directors and overseas consultants. These professionals are available to conduct seminars and to offer technical assistance regarding the specification and use of Southern Pine lumber products. Please contact SFPA for details.

An Environmental Asset

Wood products have so many cost and construction advantages over other building materials that it is easy to forget what an environmental asset it is to use wood.

We sometimes forget that wood is naturally reusable, recyclable and biodegradable. Or the best insulator of all structural building materials, thus conserving finite fossil fuels and coal by requiring less energy to heat and cool a home built with wood. Or that it takes far less energy to transform trees into wood products than it does to manufacture steel, aluminum, masonry or plastic products. Less pollution of the air and water, too.

Wood is also renewable. Ores and petroleum used for non-wood products, once used, are not renewable. They are gone forever.

Trees, however, *are* forever. Contrary to what alarmists say, America is not running out of trees. More trees are grown each year in the U.S. than are harvested or lost to disease, insects and fire. A third of America is covered with trees today, more than we had 70 years ago. And being planted at the rate of 4.5 million a day — 6.5 trees a year for every American.

Finally, remember that a growing forest removes the greenhouse gas carbon dioxide, while giving off life-sustaining oxygen. Can you think of a better environmental exchange than that?

SOUTHERN PINE COUNCIL

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Southeastern Lumber Manufacturers Association

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